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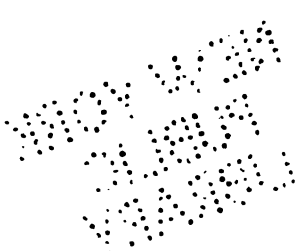
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HANDICRAFT FOR HANDY GIRLS.



It is not strength,
but art obtains the prize.

—HOMER-ILIAD.

INTRODUCTORY NOTES

NOT long after the publication of "The Boy Craftsman," there came to the author the suggestion that girls ought to have a book just like it upon girls' handicraft; after "Handicraft for Handy Boys" was published, requests for such a book came regularly; after the third volume, "The Handy Boy," made its appearance, requests came more frequently and were more insistent; some, in fact, were in the nature of demands. Accordingly, when work was begun upon the fourth volume, it was decided to let the girls have a share in it, and "Home-made Toys for Girls and Boys" was prepared with as many ideas for girls as for boys.

Now, of course, the author knew that girls are interested in handicraft other than toy-making, that their interests cover almost, if not quite as broad a field of endeavor as boys' do, so he was not surprised to find that "Home-made Toys for Girls and Boys" whetted the girls' appetites for a book of material of a more general nature, nor was he surprised to find that girls wanted a book all of their own, in which boys had no share whatsoever. If excuse is necessary, this then is the reason for presenting "Handicraft for Handy Girls."

In collaboration with an expert craftswoman, a worker with girls, a writer upon fine arts, the author of the boys' handicraft books has endeavored to produce in "Handicraft for Handy Girls" a volume which will be as broad in scope, as up to the minute in subject matter, and as practical in every detail, as any of his other books. In fact, it has been his aim to make

"Handicraft for Handy Girls" a volume that will be such a source of enjoyment to every girl that it will become as constant a companion as her most devoted chum, a volume that she will refer to when she wants ideas for fixing up her room, ideas for holiday and birthday gift-making, ideas for parties and entertainments, instruction in fine arts, garden hints, money-earning plans, camping suggestions, or when she wants simply a good rainy-day or sunny-day pastime for a leisure hour or so.

It used to be the general belief that it was next to impossible for the average girl to drive a nail straight, carpentry for girls was not to be thought of. Now, it is being demonstrated every day that a girl can become as proficient in the use of a hammer as a boy can. In fact, many girls are studying manual-training at school. And why not? If a girl wants something pretty for her room, or wants a household convenience of some sort, why is it not perfectly feasible for her to put her ideas into tangible form? She can, once she secures confidence in herself, and the only way to gain confidence of course, is for her to go ahead and produce an article in wood, and through producing prove her ability.

The carpentry in "Handicraft for Handy Girls" is of the simplest possible order, and requires few tools. A saw, a hammer, a screw-driver, and a plane, will perform most of the operations, and a plane is not always necessary. Many of the articles, such, for example, as the Cretonne-Covered Carpentry in Chapter 7, can be built with simply a saw and a hammer, because with a neatly put on covering of cretonne, little does it matter whether the box boards or other boards used have rough surfaces or smooth, they will be concealed. If assistance is needed in building a work-bench, in putting up the stick framework of the Brush-Hut in Chapter 38, or in other work, a girl usually has enough influence with father or brother to get a helping hand when occasion arises.

Following the plan of the boys' handy books, "Handicraft

for Handy Girls" has been prepared with the purpose uppermost in mind to encourage the utilization of materials to be found at home, especially those which are ordinarily classed as waste. Through making use of pick-up materials, a girl will learn to be thrifty and resourceful; she will discover that it is not always necessary to spend money to make things that are worth money; and with such lessons in economy practised, the training should be invaluable. And the book should bring relief to parents who have had the experience that the average pastime in which their daughters become interested causes a drain upon the home purse, without being of value aside from providing a means of entertainment.

Thanks are due Miss Cecelia Farwell, Editor of "Wohelo," for her courtesy in editing the material in Chapter 34 describing the activities of Camp Fire Girls; to Miss Mary S. Christie of the Hawthorne School, Waterloo, Iowa, and to Mr. Frank H. Ball, Director, Industrial Education, Pittsburgh, for Bird-House Photographs; to the publishers of the Ladies' Home Journal, and Woman's Home Companion for returning original drawings for such of the authors' articles as have appeared in these publications.

A. N. H.

ELMHURST, ILLINOIS,
OCTOBER 16, 1916.



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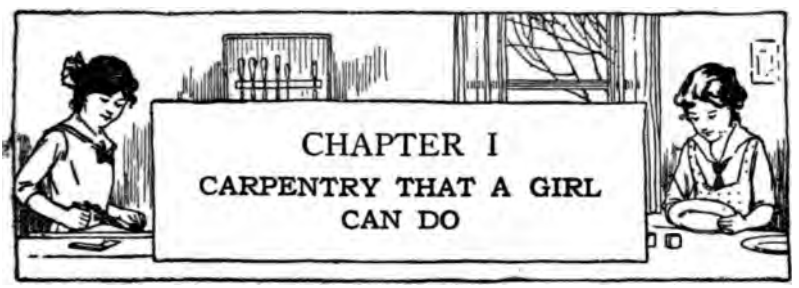
Fig. 682. — A Cradle
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Fig. 686. — A Swinging Seat 384



PART I

Autumn and Winter Handicraft





CHAPTER I

CARPENTRY THAT A GIRL CAN DO

It is a mistaken idea that girls cannot drive a nail straight. I have seen a girl "drive home" a nail as expertly as any mechanic can, and the success with which girls are competing with boys in some of our manual-training schools is proof enough that with practical application and proper guidance any girl can become efficient in wood-working. The main reason for a girl's not succeeding in driving nails straight is lack of confidence, the result of having failed in her first attempts and, possibly, having pounded her fingers. Just as long as this distrust of one's self exists will the nails drive crooked, bend over, and fingers be mashed. The difficulty will be entirely eliminated if these simple directions are followed.

Use a Hammer That is Not Too Heavy for your wrist muscles to control, hold it well out toward the end of the handle and swing it with a long, free stroke. And what is most important of all, keep your eyes riveted upon the head of the nail you are driving, from the instant you start to drive until the last stroke has been delivered. Do this and you will find that your hammer will strike the nail-head squarely with

every blow; if you let your gaze become a bit unsteady, you will run an excellent chance of bruising some fingers. Never mind the hammer, watch the nail-head. Now, while we are on the subject, I am going to give you a few more

Pointers about Nailing, which, besides making it possible for you to drive a nail straight, will enable you so to place it that it will not split the material into which it is driven. A bent nail is easily withdrawn, but a board split as the result of improper nailing seldom can be made to look "as good as new". The magic power of putty is limited, and too much dependence should not be placed on its concealing cracks which may be avoided with care. Nearly every time you split a piece of wood while nailing it is the result of one of three conditions — too large a nail, the wrong position for the nail, or carelessness in driving.

Sizes of Nails to Use. The size of nail to use always depends upon the working material. Thin wood is more easily split than thick wood, soft wood more easily than hard wood, and very dry wood than wood which is not thoroughly seasoned; because there is not so strong a bond between the wood fiber of thin, soft, and very dry wood as between that of thick, hard, and "green" wood.

When Driving Nails Into Thin Wood, or close to the edges of boards, holes should first be started with an awl to lessen the danger of splitting. The holes should be smaller than the nails so that the nails will

drive in securely, and it is a good plan, when the wood is very thin and delicate, to run the end of the awl into a bar of soap, to make it drill easily, without wedging the grain apart so as to split the wood.

Holes Should be Started in Hard Wood, also, when slender nails such as brads are used, so that the nails will not have to be driven with force enough to make them bend over. The holes must be smaller than the nails.

Figure 1 shows a good way

To Support Short Nails with a pair of pincers while driving them, so as to prevent bending. This is also

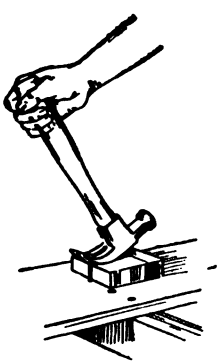


FIG. 2.
How to Withdraw Nails.

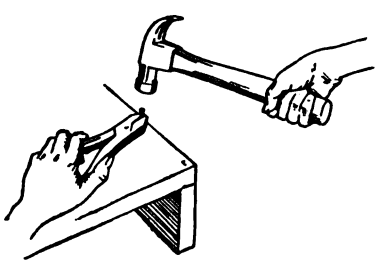


FIG. 1.
How to Support Short Slender Nails while Driving Them.

a handy method of supporting nails too short to hold between the fingers.

When a Nail Bends, after it has been driven part way in, it is quickest to withdraw it at once, and either hammer it out straight or replace it with another



nail. If another nail driven across its path, or a knot has caused the nail to bend, shift the position of the second nail. By striking just right, a nail that bends can be driven in, but the point of the nail is likely to break out of the side of the board, making its withdrawal necessary anyway, so it is best to withdraw it in the first place.

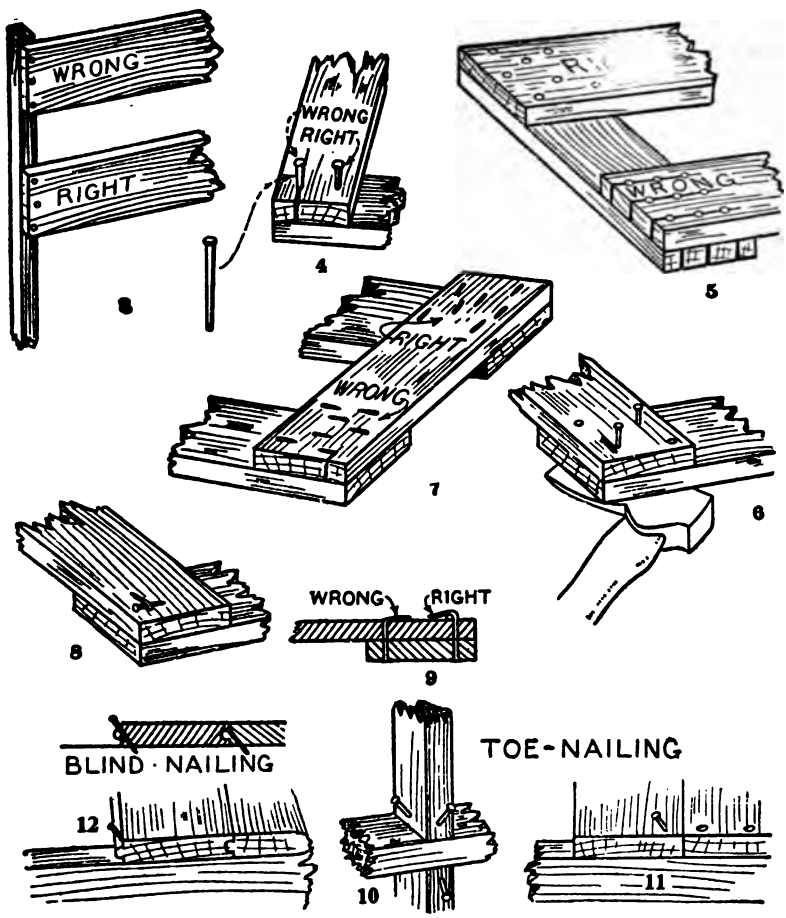
When a nail breaks out of the side of a piece of work, it must be removed by driving back its point until the head can be gripped with the claw of a hammer. Figure 2 shows how to protect the surface of a piece of work, when

Withdrawing a Nail, by slipping a block of wood beneath the hammer head; this block gives you better leverage, also. For a long nail, start with a thin block, and then substitute thicker blocks as the nail withdraws.

Figures 3, 4 and 5 show examples of

Right and Wrong Nailing. To avoid splitting a board when driving a series of nails through it, do not place the nails in rows lengthwise of the grain. A nail acts as a wedge, and its tendency is to wedge apart the grain. Under favorable conditions, one nail will simply compress the grain sufficiently to make room for its passage; but if you drive two or more nails in a row between the same wood fibers, the probability is that the wood will split.

If you use flat-sided nails, do not drive them broadsides against the grain, but with the grain (Fig. 4).



FIGS. 3-12. — Right and Wrong Methods of Nailing.

You must consider the lower board as well as the upper one. Taking the case shown in Fig. 3, for example, the nails would not split the upper piece if

placed in a row, as shown, because they extend across the grain; but there would be a strong tendency for the lower piece to split, because the nails drive down between the same wood fibers. By *staggering*, or zig-zagging the nails as indicated in the right method, the trouble is entirely obviated.

Figure 5 shows one of the worst possible forms of nailing — a tit-tat-toe arrangement, with the nails wedging apart the grain of both upper and lower pieces of wood. Any girl who has learned exactness is inclined to drive nails in this fashion. Notice how the nails are staggered in the right method, so that no two in rotation follow the same grain.

There is a great tendency among girls to use too many nails in one place, which is a fault to overcome, because too many in one spot are as bad as too few, since they separate so many wood fibers that the wood becomes weakened.

Clinching Nails. Nails should never be so long that their points will protrude from the under side of a piece of work, unless you wish to clinch them for the purpose of *riveting* the piece together, so to speak. Clinching should not be done on parts of nice work which will be exposed to view; instead, if there is any possibility of nails not holding, use screws. The ends of the nails can be clinched by laying the work upon the side of a hatchet, and then driving the nail so that the point will strike its hard surface (Fig. 6). The points will then bend over and drive tight up against the wood.

Figure 7 shows the right and the wrong way of clinching. When you clinch nails in the direction of the grain, the ends will drive into the wood; when you clinch them across the grain, the ends will not lie flat. If you clinch a nail by hammering over its end, bend it over a nail as shown in Fig. 8. In this way the point will sink into the wood. If you do not do this, the middle portion of the nail will drive in, and the point will stick up (Fig. 9).

Figures 10 and 11 show two examples of

Toe-Nailing. This form of nailing consists in driving nails diagonally into pieces of work. In Fig. 10 is shown an instance where toe-nailing is the only possible way to nail the ends of two uprights to a horizontal piece, while Fig. 11 shows how toe-nailing is done to drive one board up against another. It is sometimes convenient to toe-nail when the nails at hand are too long for a piece of work.

Blind-Nailing is a form of toe-nailing generally used upon *tongued-and-grooved* boards, in which the nail-heads are concealed upon the edges of the boards, as shown in Fig. 12.

Most of the rules given for nailing apply also to

Driving Screws. When driving into hard wood or very thin wood, drill holes for the screws. It makes easier driving and eliminates the danger of splitting. The hole in the upper board should be a trifle larger than the diameter of the screw, so that the screw will not bind in it; and the hole in the lower board should

be a trifle smaller than the screw, so that the screw will thread its way into the wood and take a good hold.

Screws will drive more easily if they are *soaped*, that is, pushed into a piece of soap so as to coat the threads with grease.

To Withdraw a Rusted Screw. When a screw has become rusted, to strike its head a few blows with a hammer will help to loosen it. A red-hot iron held to the screw-head for a few seconds will also help.

After learning how to drive nails and screws, the next lesson should be in

Sawing. A 20- to 24-inch cross-cut hand-saw is about the right length for a girl's use, and with the addition of a small pointed saw will serve almost every purpose. The principal difficulty that a girl experiences in sawing — that of keeping to a straight line — is due to taking a wrong position. The proper way to saw off a piece of board is to place it across a couple of boxes (Fig. 13), then, with the left knee raised and pressed against it, to hold the board in position, grasp the saw with the right hand, and place the left hand over the edge close up against the mark for sawing (Fig. 14), so that it will act as a guide to the saw in starting the cut. Without the thumb guide, the saw is likely to slip off of the mark to one side or the other. First use a few short strokes to start the cut, then use a long steady stroke, putting all the pressure upon the down stroke; and, to keep to the line, and to make a square cut, hold your head over

the saw blade so that at all times you can sight along the entire length of the blade. If the saw starts to



FIG. 14.

FIG. 13 — Position to Take for Sawing.
FIG. 14 — How to Guide the Saw with Your Thumb.

run away from the line, a slight twist of the blade to one side or the other will turn it back into the right path.

When a board has been sawed nearly in two, remove the weight of your knee, and hold the end of the board with the left hand to prevent its splitting off.

Several chapters might be given over to the handling of tools, but as

The Principal Tools That a Girl Will Use for her home carpentry are the hammer and the saw, I am going to let the above instruction suffice, with the suggestion that those of you who wish to go further into the study of tools, refer to the chapter on "Elementary Manual Training" in *Handicraft for Handy Boys*, and that on "The Proper Handling of Tools" in *The Boy Craftsman*. In addition to the hammer and the saw, you will need from time to time a hatchet, a chisel, bit and bit-stock (for boring holes), screwdriver, square, ruler, pencil, and jack-knife. Probably father can lend you all these.

Cutting Large Holes. You will want to bore holes, and oftentimes large holes. When you have a bit and bit-stock, the way to bore large holes is that shown in Fig. 15. In the illustration, *A* shows the size of the hole to be cut, *B* shows the first step in cutting it — boring a ring of small holes inside the circle, *C* shows the second step — splitting out the wood between the holes with a chisel, and *D* shows the finished hole, after the third operation — trimming up to the circle with the end of the chisel.

Cutting Slots is done in a similar manner (Fig. 16). First, mark out the slot *A*; then bore a hole at each end, and one or more between them (*B*); then split out the wood between the holes (*C*); and trim up the sides of the slot to the finished line with a chisel (*D*.)

You must have a Work-bench if that bench be nothing more than the kitchen table between the times

of preparing meals. I have improvised a bench from a table on numerous occasions, while living in an apartment, and found it quite satisfactory. The table top must be protected so that cutting and hammering will not injure it, and Figs. 17 and 18 show

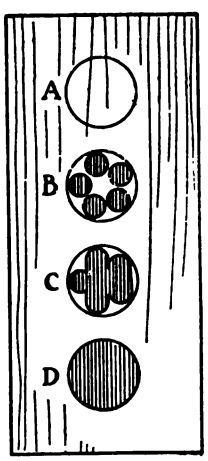


FIG. 15 — How to Cut Large Round Holes

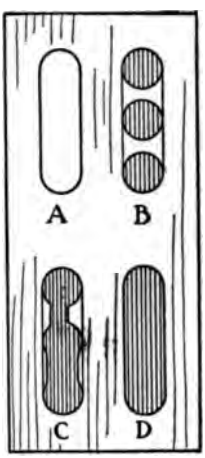


FIG. 16 — How to Cut Slots.

A Table Workbench both before and after the improvised bench-top has been clamped on, and Fig. 19 shows a detail of the top. Boards *A* and *B* must be cut off the length of the table. Nail *B* to the edge of *A*. Then to board *A* nail a 1-by-2-inch strip along the lower edge (*C*), to the left-hand end nail the board *D*, and to board *D* nail the cross-piece *E*. Project the end of strip *E* to the right of block *D*, as shown, and you will have

An Improvised Vise that will serve your purpose excellently. Make block *D* about 1⅛ inches thick; then with the strip *E* projecting beyond it you will have a pocket deep enough to receive the end of any board of ordinary thickness. To use the vise, rest

the edge of your work upon strip *C*, and slide it along in back of strip *E*, and up against block *D*. Then, to hold the end of the work firmly, drive a wedge-shaped block similar to *F* (Fig. 19) in between the work and strip *E*.

This vise will hold pieces of boards edgewise. To hold them flatwise upon the bench-top,

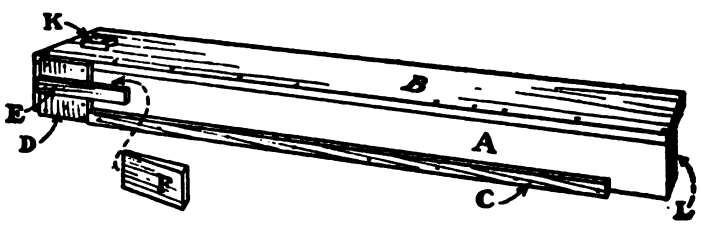


FIG. 19

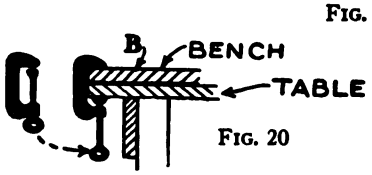


FIG. 20

FIG. 19 — Make a Bench-Top like this for the Table Work-Bench.
FIG. 20 — Clamp the Ends of the Bench-Top to the Table, like this.

A Bench-stop, or block with a "bird's mouth" cut in one edge (*K*, Fig. 19) must be nailed to the top of the bench at the left end to shove work against.

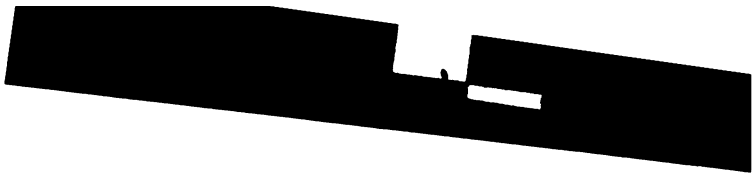
The block *L*, shown upon the right end of board *A* (Fig. 19), must be of the right thickness to fill in the space between board *A* and the front of the table, when the top has been placed upon the table-top. Nail a similar block to the left-hand end and a third to



FIG. 17.—YOU MUST HAVE A WORK-BENCH IF THAT BENCH BE NOTHING MORE THAN A KITCHEN TABLE



FIG. 18.—A KITCHEN TABLE WITH ITS IMPROVISED TOP CLAMPED ON



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the center of the board. These blocks will make board *A* rest solidly against the front of the table.

To hold the bench-top to the table so that it will not slip, clamp the ends with a pair of iron clamps in the manner shown in Fig. 20. This clamping arrangement, of course, makes it possible to detach the bench-top quickly when you are through working. The bench-top can be stood in an out-of-the-way corner until wanted again.

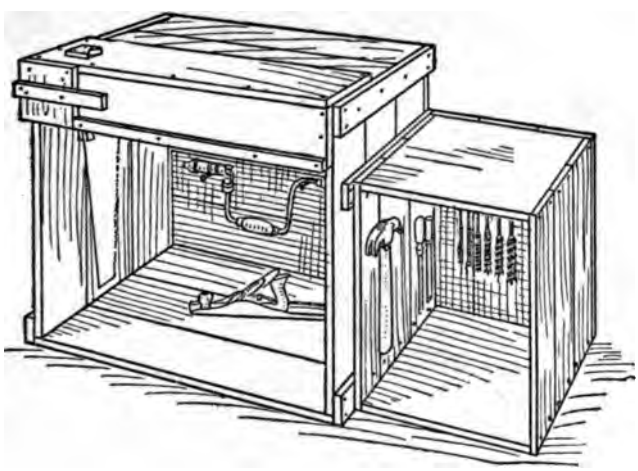


FIG 21—A Work-Bench Made of Packing Boxes.

If you wish, board *B* may be hinged to the edge of board *A*, so that the two may be folded one against the other, which will make them more compact for storing.

If you have space in which you can keep a work-bench permanently,

A Packing-box Work-bench like that in Fig. 21 is a very simple bench to make, and will answer your purposes well. If you can get a pair of large packing-boxes of equal size, fasten them together side by side to make a long working surface; if not, a large box and a smaller one will do (Fig. 22). Nail the boxes together

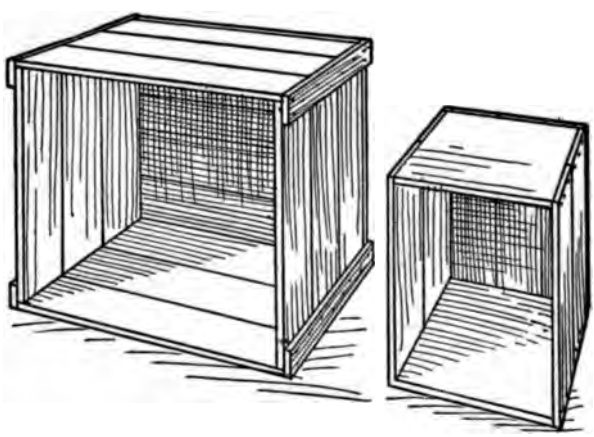


FIG. 22 — A Large and a Small Box may be Used for the Bench.

as in Fig. 23; then nail boards *H* and *I* across the backs in the position shown, for braces.

The Bench-vise for this bench may be made like that for the table work-bench. Make the same sort of a top, with the two boards nailed together, edge to edge, (Fig. 19) Then nail this to the top and front of the work-bench, and nail to the front board the block and strips which form the vise.

You will find

Ways to improve your Work-bench from time to

time. The inside of the boxes may be equipped with racks and hooks for tools, and doors may be put on to enclose the front. But a still greater improvement will be to rebuild it, making

A Bench with an Iron Vise like that shown in Fig. 24. Perhaps father will have time to help you make this. The bench is built up of two boxes 20 by 20 by 30 inches in size. Place both on end (Fig. 26), close together,

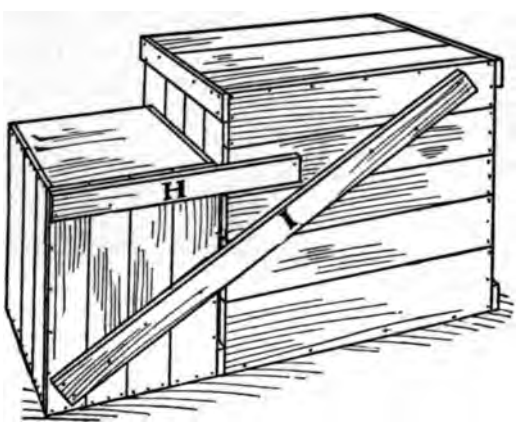


FIG. 23
Nail Together the Boxes, and Brace as Shown.

and connect them with strips *A* (Figs. 24 and 25) on the bottom, with strips *B* and *C* across the back, with the board *D* across the top, even with the front, and with the board *E* across the front. Strips *A*, *B* and *C* need not be more than 3 or 4 inches wide. Board *D* should be 10 or 12 inches wide, as it forms the main working surface of the bench, and board *E* should be of the same width, as it forms the surface against which work is held when placed in the vise.

Cut the diagonal brace *F* to fit between strips *B* and *C*, and nail it to the back of the bench.

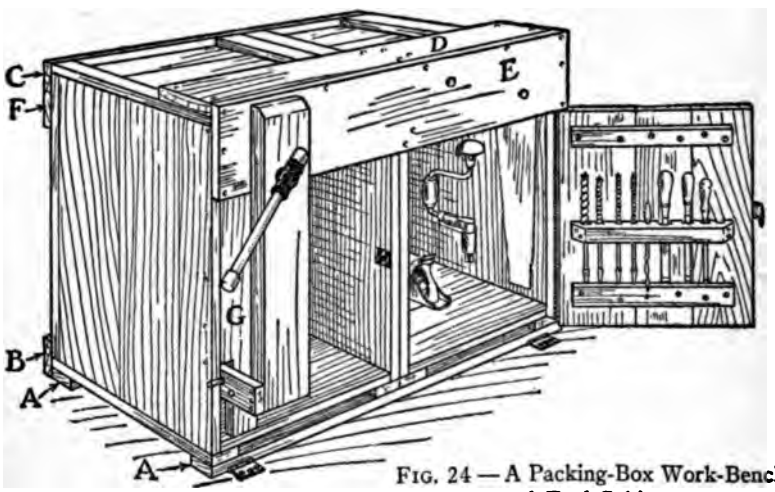


FIG. 24 — A Packing-Box Work-Bench and Tool-Cabinet.

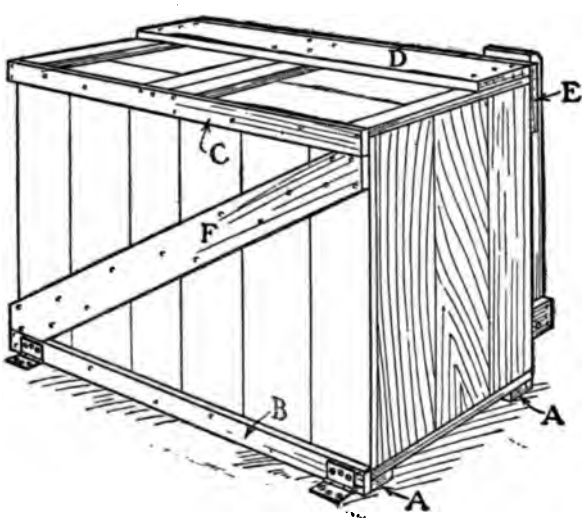


FIG. 25 — View of Back of Work-Bench

The Bench-vise is constructed at the left end of the bench. Cut the vertical board *G* to fit between the ends of the left-hand packing-box (Fig. 26), and, before nailing it in place, saw a piece 1½ inches wide and 6 inches long out of the lower end. This opening forms a pocket for the vise sliding-strip (Fig. 28).

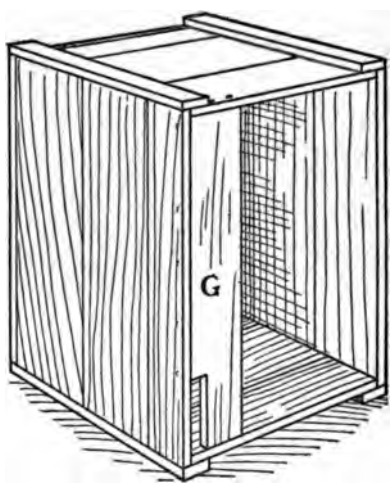


FIG. 26 —The Board G Forms a Pocket for the Vise Sliding-Strip.

The vise-jaw should be 6 or 8 inches wide, 2 inches thick, and about 6 inches shorter than the bench-top (Fig. 28). The best way to bore the hole for the bench-screw is to nail the jaw, temporarily, to the front of the bench, in its proper position, with the top even with the bench-top, and then bore straight through it, through board *E*, and through board *G*. The hole through *G* will have to be cut larger than that through the jaw, to receive the iron socket (Fig. 27). This enlarging can be done with a chisel.

Screw the iron socket to the inside face of board *G*, and screw the iron plate on the handle end of the bench-screw to the face of the jaw. For the sliding-strip (Fig. 28), cut a piece of board 3 or 4 inches wide

and 18 inches long, bore a number of small holes through it ½ inch apart, and nail it to the left edge of the lower end of the jaw, at the proper height so it will slide through the opening in board *G*. Cut a wooden peg to fit the holes.

The holes shown in the apron board *E* (Fig. 24) are bored for an adjustable peg to support the long pieces of work.

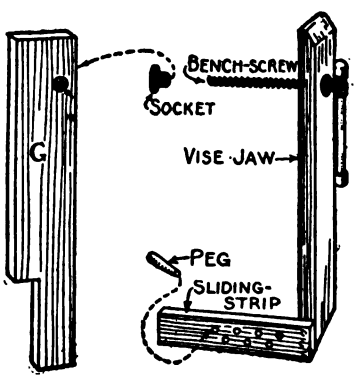


FIG. 28

FIGS. 27 and 28 — Details of Bench-Vise.

Figures 24 and 25 show how to

Fasten the Work-bench to the Floor with Hinges, an excellent way to prevent the bench from sliding over the floor while you work upon it. Do this, if there is no objection to driving the screws into the floor. One pair of hinges at the back, and another at the front, are enough.

An Excellent Tool-cabinet can be made of the right-hand packing-box by hinging a door to the front, and providing racks and hooks for tools (Fig. 24).

A Good Rack for Bits and Chisels can be made by notching the edge of a strip of wood, and screwing it to the door, as shown in Fig. 24.

Figure 29 shows

An Excellent Nail-box for work-bench use, and

father and mother, too, will have many occasions to borrow from it. The box from which the illustration was made is a 10-cent knife-box with its two compartments sub-divided into six smaller compartments,

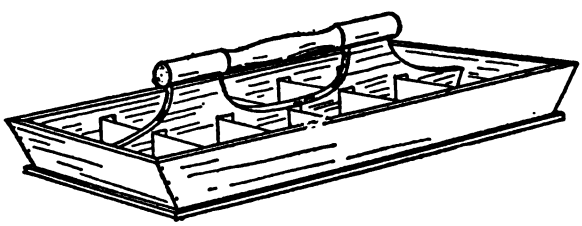


FIG. 29 — A Nail-Box.

each by means of pieces of tin bent over at the ends and tacked to the box sides.

Did you ever have occasion

To Divide a Board into a Number of Equal Parts, when its length was of an odd measurement? Figure 30 shows how to do it quickly. Take a ruler and place

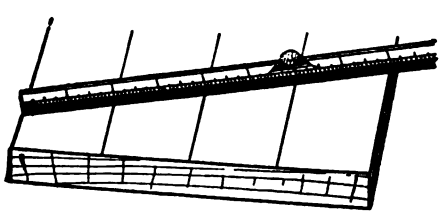


FIG. 30 — How to Divide a Board into Equal Parts.

it across the board with one end at one end of the board, and the inch measurement equal to some multiple of the number of divisions wanted, at the other end.

Then mark off the division points, and rule lines across the board at these points. In the illustration, the board is divided into four equal parts, and to get the points, the end of the rule was placed at one edge of the board, and the 8-inch mark (a multiple of 4) at the opposite edge. Then the divisions were laid off along the rule, 2 inches apart.

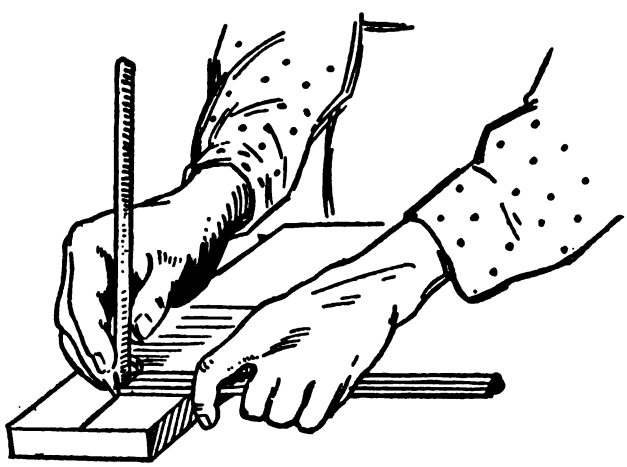
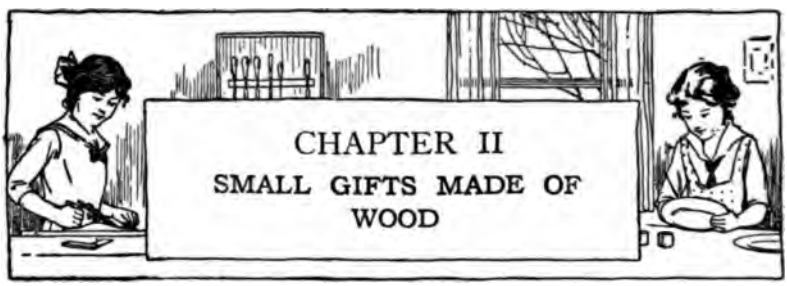


FIG. 31 — How to Gauge with a Rule and Pencil.

Gauging with a Rule and Pencil. When a carpenter wishes to rip a strip, say 2 inches in width, from a board, he holds his folding-rule upon the board with his left hand, as in Fig. 31, with his first finger even with the 2-inch measurement; then, holding his pencil with the point against the end of the rule, he slides the rule along the board and draws a line that is parallel

to and exactly 2 inches away from the edge. You will find this easy to do, as soon as you can get the knack of holding the first finger against the edge of the board, and the pencil against the end of the rule, and this is easily acquired with practice.

When Marking Out Work, be very careful to get all your measurements exact, to draw exactly straight and true the lines that connect the points marked off, and then to finish close to these lines in cutting. You can accomplish this, with practice, and you will find it a pleasant task to do your work accurately.



CHAPTER II
SMALL GIFTS MADE OF WOOD

The articles illustrated in this chapter have been selected because of their usefulness and the ease with which a girl can make them. They are small articles of just the right size for Christmas and birthday gifts, and some of them you will want to make for your own room.

The Materials required will cost so little that any of the articles will be inexpensive to make, and as all are of very simple construction they can be made easily and quickly. Pine, whitewood, basswood, and oak are the best woods to use, and if you want only enough material for one or two articles you can get it from a carpenter. Oftentimes, a carpenter has large-enough pieces in his scrap-pile to serve the purpose, and these he will gladly let you have if you will take the trouble to pick them out.

There are a variety of

Methods of Finishing woodwork, but for small articles nothing is nicer than a stain- and wax-finish. Prepared wood-stains of all colors can be purchased in small quantities at any paint store.

The woodwork should be sandpapered smooth, and free from saw and plane markings; then the stain should be applied, and, after it has dried, a couple of coats of wax should be rubbed over the surface to give it a semi-gloss finish. Complete instructions for applying stains and wax accompany these materials.

An open-grained wood, such as oak, is often *filled* after it has been stained; that is, the wood is brushed over with a liquid which fills up the grain flush with the surface; but filling is unnecessary for small articles, and really detracts from their appearance, because it conceals, more or less, the pretty markings of the grain,

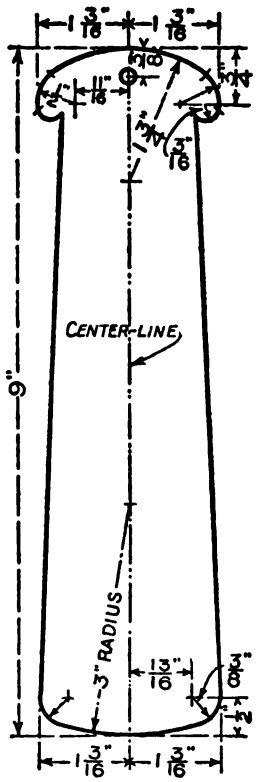


FIG. 37 — Detail of Thermometer-Board Shown in Fig. 32.

The Thermometer-board illustrated in Fig. 32 is a very practical little article that is needed in every house. The back board should be made of wood about ⅜ inch thick. Figure 37 shows a pattern for this, with all the necessary dimensions for laying it out. First, draw the center-line as shown, then lay off the measurements each side of the line; this is the easiest way to get

both sides alike. The curved ends should be cut with a small saw — a scroll-saw, a bracket-saw, or a coping-saw — and then be smoothed off with a wood-file and sandpaper. Bore a small hole through the board, near the top, for hanging it up. Do this before you have cut out the end; then there will be less danger of splitting the wood. You may screw a small brass screw-eye into the top of the board instead of boring the hole, if you wish.

The little metal strip holding the thermometer can be purchased at any large stationery store, or department store, and will cost 15 or 20 cents, and a small calendar-pad can be purchased for a few cents at the same place. The thermometer for this size of board should be about ¾ inch wide and 5¾ inches long, and the calendar 1¼ inches wide by 1¾ inches long. If you cannot find a thermometer and a calendar of these proportions, it may be necessary to alter the dimensions of the board, because the margin around them should be about the same as it is in the photograph (Fig. 32). Fasten the thermometer and calendar-pad to the board with brads. As the glass bulb and upper end of the thermometer generally project a trifle beyond the back of the metal strip, it will be necessary to hollow out places in the board for them to fit into.

The Key-board shown in Fig. 33 should be made of a piece of wood ⅜ inch thick, by the other dimensions shown in the pattern (Fig. 38). After laying out, cutting, and planing up this piece, mark off a bevel



FIG. 32.
A THERMOMETER-BOARD.



FIG. 33. — A KEY-BOARD.



FIG. 34. — A SPOOL-HOLDER.



FIG. 35. — A SPOOL-RACK.

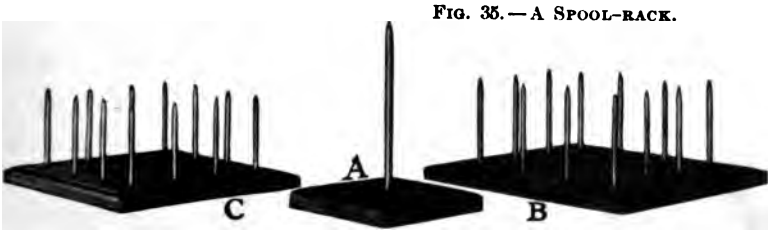
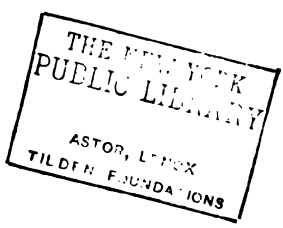


FIG. 36. — THE THREE PARTS OF THE SPOOL-RACK.




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¼ inch wide around the face edges, and cut it with your plane.

Lay off the positions for the hooks, following the measurements given in Fig. 38, and then start the holes in these positions with a brad-awl. The screw-hooks should be about 1 inch in length. Screw screw-eyes into the top edge of the board, by which to hang it up.

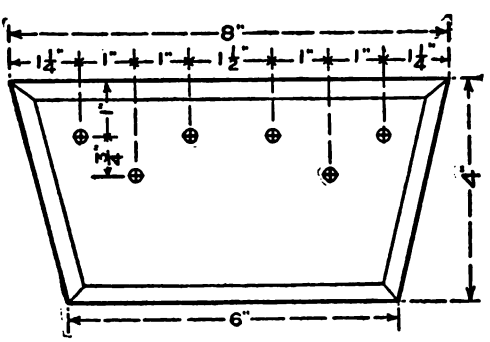


FIG. 38—Detail of Key-Board Shown in Fig. 33.

A Spool-holder such as shown in Fig. 34 not only allows the spools to unwind the thread freely, but prevents them from rolling off on to the floor.

The spool-rack should be made of wood not over ⅜ inch thick, and even cigar-box wood is not too thin. The base of the holder should be made of the size shown in Fig. 39. Bevel its top edges. The pattern for the end pieces is also shown in Fig. 39. Bore a hole in each large enough for a 4½-inch nail to slip through. This nail forms an axle for the spool to turn upon.

A Spool-rack like the one shown in Fig. 35 will be a greater convenience than the one just described, because it will hold twenty-six spools, each within

easy reach when wanted. The upper and lower shelves of the rack are pivoted so as to turn on the base block, and, by this arrangement, when the rack is placed upon a table either shelf may be turned until the size of thread wanted is nearest. The rack is heavy enough to keep its position while the thread is unwound from a spool.

Cut the base block *A* (Fig. 36) 3 inches square, *B* 6 inches square, and *C* 5 inches square; and bevel

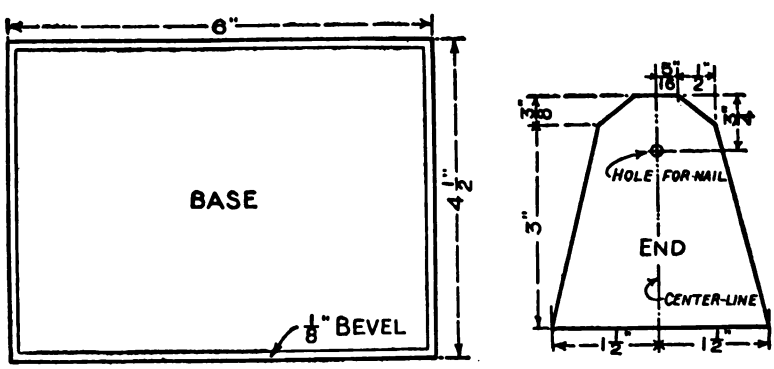


FIG. 39 — Details for the Spool-Holder Shown in Fig. 34.

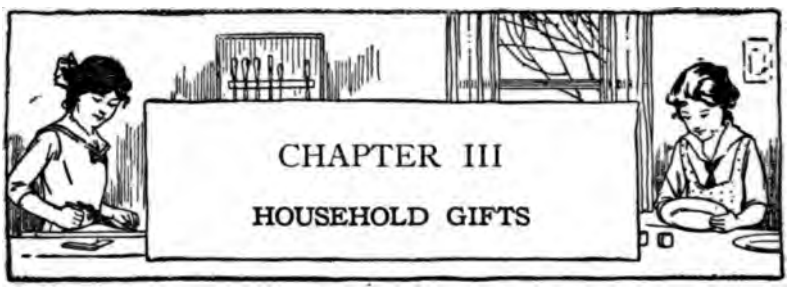
the upper edges of each. The center pin of block *A* is a 4-inch wire nail, the pins of block *B* are 2½-inch nails, and the pins of block *C* are 2-inch nails. With a gimlet or drill, bore holes a trifle smaller than the nails through the three blocks before driving in the nails, so that the wood will not split. Lay off the positions for the nails with a ruler, first drawing a line around

block *B* 1 inch away from the four edges, and another around block *C* ¾ inch away from the edges. The center pin should fit loosely enough in the holes in *B* and *C* so the blocks will turn easily upon it.

A large spool should be slipped over the center pin, between blocks *B* and *C*, to support *C*. The upper rack must be lifted off to slip on and off the spools from the lower rack.

A Simpler Spool-rack than the above may be made by omitting the upper block *C*.

A Paper-spindle on which to file grocery bills, receipts, etc., for safe keeping, may be made similar to base *A* of the spool-rack (Fig. 36). The nail-pin of the paper-spindle must be filed to a long, sharp point, so that it will pierce papers easily.



CHAPTER III

HOUSEHOLD GIFTS

Here are a few contrivances for the kitchen and pantry which will be appreciated by mother if made by her handy girl. Nothing better could be selected for her Christmas or birthday gift, and other relatives who keep house would appreciate them, too.

The Tool-rack in Fig. 40 is most convenient when hung directly over the kitchen work-table. The length of the hook-strip will be determined by the space in which it is to hang, and by the number of forks, spoons, and other tools which it will be required to hold.

The appearance of the rack will be improved by planing a bevel on the face edges of the hook strip and the end blocks, as in the illustration. Use brass screws or galvanized nails for hooks, and screw a screw-eye into the top edge of each end block to hang the rack by.

The Bottle-rack in Fig. 41 will hold your mother's bottles of extract, catsup, sauces, and dressings, and eliminate the possibility of upsetting bottles when reaching for the one wanted.

Narrow strips should be used for the division strips of the rack, to save space and make the rack light in weight. Laths planed smooth on all sides will do for

the side and center strips, also for the cross strips. The ends must be about 3 inches wide. The lengths of the strips will be determined by the number of bottles which it will be required to hold, and you can

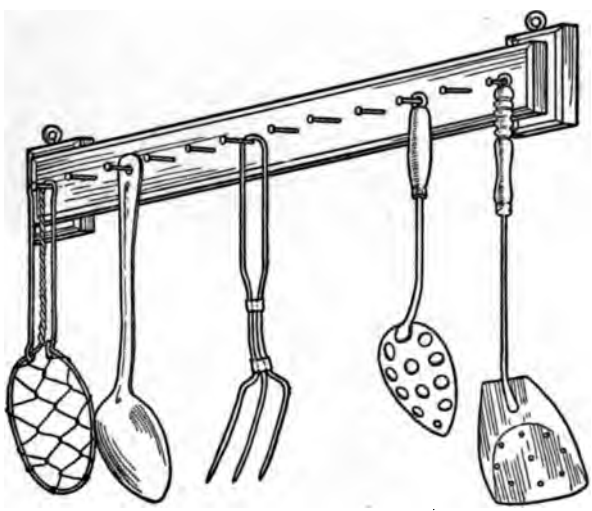


FIG. 40 — A Kitchen Tool-Rack

estimate the number after making an inventory of the bottles on your mother's pantry shelves.

Be careful to cut like pieces of uniform size, so that they will fit together nicely. Also, be careful to make the pockets large enough so that the bottles will fit loosely in them. Use brads for assembling, and fasten together the front and rear portions separately so that you can drive the brads through the long strips directly into the ends of the short cross strips (Fig. 42).

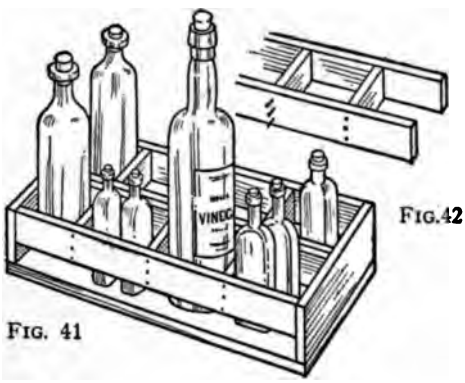


FIG. 42

FIG. 41

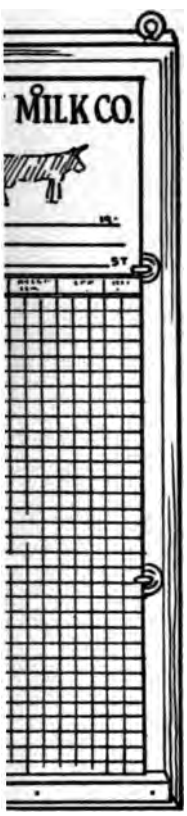
FIG. 41. — A Pantry Bottle-Rack
FIG. 42. — Detail of Rack

Then connect the two frames by means of the end strips. Nail the bottom board to the under side of the end strips.

The Milk-card Rack in Fig. 43 is provided with screw-eyes, to hang upon hooks outside of the door at which the morning milk is delivered. Figure 44 shows a pattern for the board, but because milk cards vary in size, you had better measure the card for which the board is to be used, to see that it fits, before you begin work. The margin around the card should be about as in Fig. 43. Bevel the edges of the board as shown. Then prepare the strip *A* (Fig. 44), and fasten it with brads along the lower edge of the board for the card to rest upon. Give the board two coats of shellac, varnish, or paint; then when it is dry screw four hooks into it at the points indicated (*B*, Fig. 44), to hold the edges of the card, and a pair of screw-eyes into the top edge, for hangers.

Figure 45 shows

A Handy Safety-match Holder. The cover of the safety-match box fits down over the block *E* (Fig. 48),



A Milk-Card Board

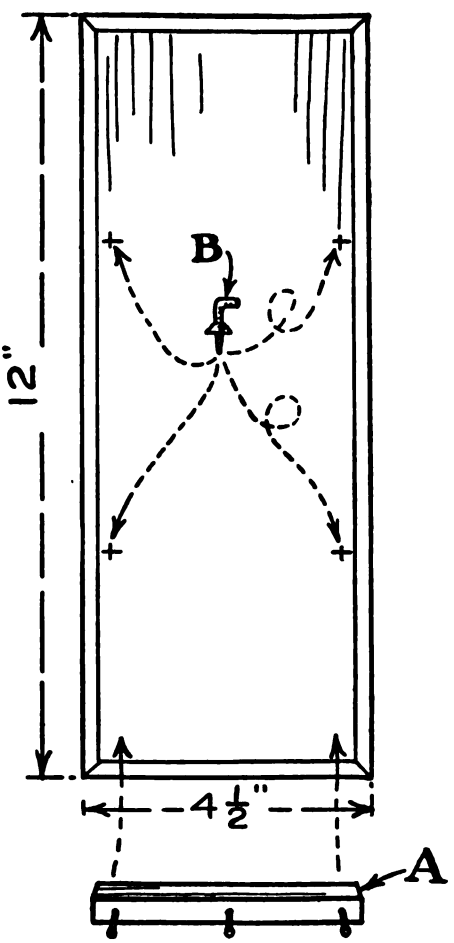


FIG. 44. — Detail of Milk-Board

to hold the matches and to provide the match-scratcher. And block *E* raises the match ends 1 inch above the cover, so that they will be handy to pick out. The safety-match box stands upon the lower shelf *B*,

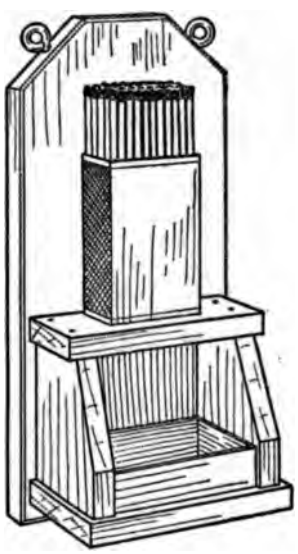


FIG. 45. — A Safety-Match Holder

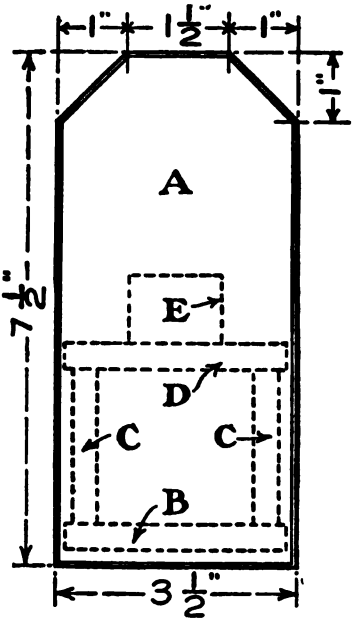


FIG. 46. — Detail of Back-Board

between ends *C* (Fig. 48), for a burnt-match receptacle (Fig. 45).

The match-holder may be built up of cigar-box strips, or wood ¼ or ⅜ inch thick. Figure 46 shows a pattern for the back-board *A*, and Fig. 47 shows the pattern for the other parts. Fasten block *E* to shelf *D*, in the

center of its length, and about ⅛ of an inch inside of the back edge; then nail *B* and *D* to the ends of pieces *C* (Fig. 48), so that their back edges are in a line with one another. Screw a pair of screw-eyes into the top of back-board *A*, for hangers.

A Scrub-pail Platform like that in Fig. 49 saves the lifting of the scrub-pail from place to place while scrubbing, as it is provided with castors so that it may be pushed about upon the floor. This is a great strength-saver, and it is easily made.

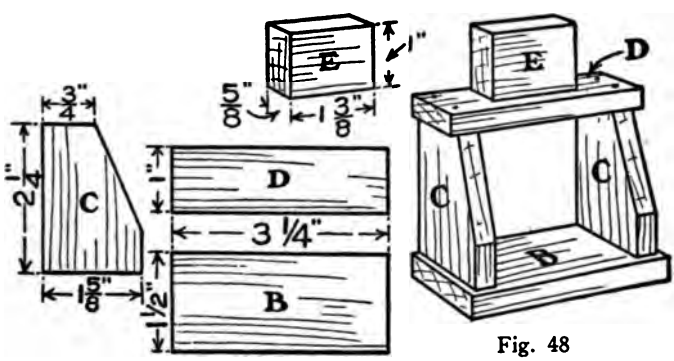


FIG. 47

Fig. 48

FIGS. 47 and 48. — Details of Parts of Safety-Match Holder

Figure 50 shows how the castors are screwed to the platform, and how strips are nailed to the edges, forming a rim that will prevent the pail from sliding off.

The Flat-iron Rest (Fig. 51) is a convenience which any housekeeper will be glad to own. It is much handier than an inverted pie-plate or folded newspaper, to set an iron upon, and the sole of the iron may be

cleaned by rubbing it on the piece of emery-paper fastened to one-half of the board.

Cut the board about 8 by 12 inches in size, tack a piece of tin (a piece from a tomato-can will do) over the

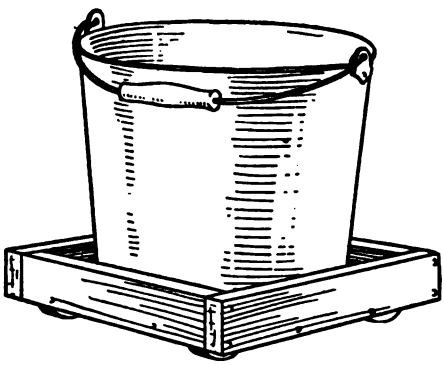


FIG. 49. — A Scrub-Pail Truck

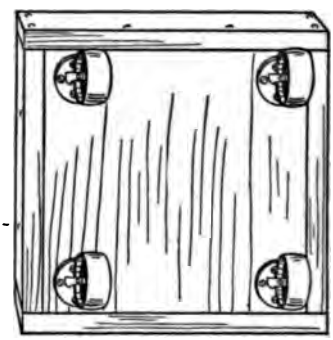


FIG. 50. — Fasten Four Castors to the Bottom of the Truck

half which is to hold the iron, and a piece of No. 0 sandpaper over the other half, and then tack narrow wooden strips around the edge of the tin for a rim. Screw a couple of screw-eyes into one end of the board by which to hang it up.

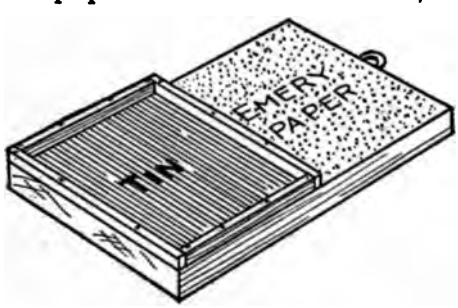


FIG. 51. — A Flat-Iron Rest

The Winter Window Refrigerator (Fig. 52) should stand upon the sill of a north window, where it will be protected from

the sun's rays. The box is small, but is large enough to hold milk and cream bottles, and a butter jar.

A grocery box will do for the refrigerator. Nail a narrow strip across the top near one edge, to hinge the cover to, and fasten together the cover boards with wooden strips screwed across them as in the illustration. After hinging the cover in place, screw an iron hinge-hasp to it, and an iron staple to the front of the box for it to hook on to; also fasten a piece of chain or heavy cord to nails driven into the box end and into the edge of the cover, to keep the cover from dropping back too far when opened.

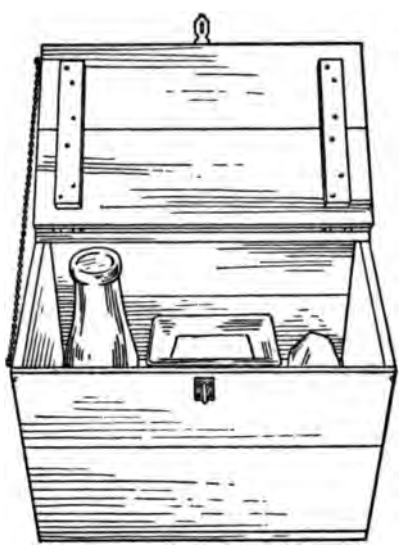


FIG. 52. — A Winter Window Refrigerator

Fasten the refrigerator box upon the window-sill, close to the window sash. Then, with the cover hasped, the box will be tramp-proof, because while the window is closed there will not be room enough between the box and the glass to raise the iron hasp.

It is best to cover the top of the box with oilcloth so that it will be water-tight, and a lining of white oilcloth

will make the inside as spick and span appearing as a white enameled refrigerator.

Bore a hole through each end of the box, so that there will be a constant circulation of air through the refrigerator, and tack a piece of screen wire over each hole so that nothing can crawl in.

Finishing. Give each of the household articles a couple of coats of paint, after assembling it, and when mother sees the work she will be proud of her daughter carpenter.

After the first coat of paint has dried, go over the work, and putty all cracks, joints, and nail-holes, before applying the second coat. If you prefer, you may shellac or varnish the articles, or finish the wood with one of the modern handicraft stains. Perhaps you will want to try different finishes upon the various articles.



CHAPTER IV

SPOOL GIFTS

EVERY girl has right at hand the materials necessary for making splendid Christmas gifts, in the empty spools from mother's and her own work-baskets, boards from grocery boxes, nails, and one or two other things that are to be found in every household.

A handful of spools of assorted shapes and sizes will suggest a hundred possibilities for suitable gifts for each friend and relative whom you wish to remember. The illustrations in this chapter show a variety of useful articles, in the making of each of which one or more spools were used, and, once you start work upon duplicating these, you will discover quite as many more ideas for simple gifts.

The Candle-stick in Fig. 53 is made by mounting a small silk-thread spool upon the end of a large ribbon spool, then mounting the ribbon spool upon a small square block. The base block may be cut from a box board. Make it about 1 inch wider each way than the diameter of the spool end, and nail it to the end of the spool as indicated in Fig. 59, with an equal projection all around the spool. Fasten the small spool to the end of the large spool with a short piece of pencil, or

a round peg whittled to the same size. Coat this piece of pencil or peg with glue, than push it through the hole in the small spool and down into the hole in the large spool, allowing about ½ inch of its end to project above the top of the short spool. A hole just large enough for this peg to fit snugly in must be cut in the end of the candle (Fig. 59). Heat the top of the pencil before pressing the candle upon it, to make the candle stick.

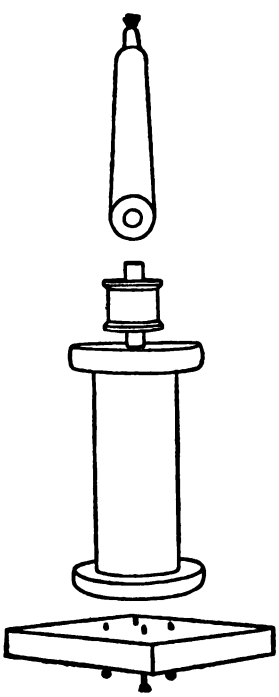


FIG. 59. — How the Candle-Stick is Put Together

Finishing. A brown stain produces a pretty finish for articles made of spools. A small quantity can be purchased from a paint dealer for ten or fifteen cents. Follow the directions that accompany it. An application of nothing but boiled linseed oil also makes a pretty finish.

After staining the candlestick, glue a piece of felt to the under side of the base to prevent its scratching surfaces that it is placed upon.

The Desk Calendar shown in Fig. 54 requires a small calendar-pad, a block upon which to mount the



FIG. 56.—A PEN-RACK



FIG. 57.—A DESK BLOTTER



FIG. 54.—A DESK CALENDAR

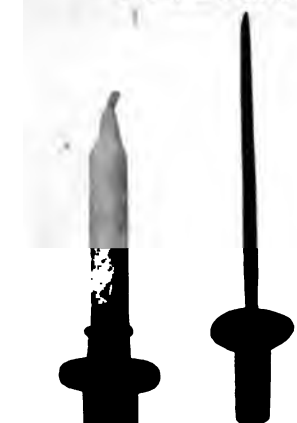


FIG. 58.
A PAPER-KNIFE

FIG. 53.—A CANDLE-STICK



FIG. 55.—A STATIONERY-RACK



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pad, and two short silk-thread spools for feet. A calendar-pad 2 inches wide and 3 inches long will cost five cents.

Cut the back block out of a box-board, enough larger than the pad to make a ½-inch margin all around it. Nail spool feet to the lower edge of the back (Fig. 60), and fasten the calendar in place with small tacks.

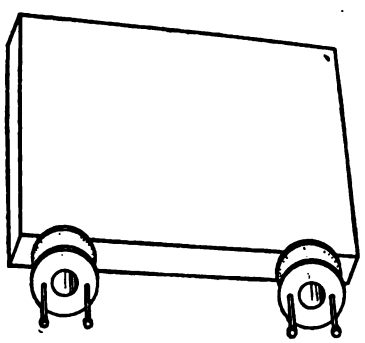


FIG. 60. — How the Spool Feet are Attached to the Calendar Board

The Stationery-rack (Fig. 55) is built up of four cotton-thread spools of equal size, four short silk-thread spools of equal size, and a piece of a box board 3 inches wide by 5 inches long. First, nail the piece of board to the ends of the four long spools, then nail the four short spools to the other side of the board, directly under the long spools, for feet. Bits of felt may be glued to the under side of the feet, to prevent them from scratching.

The Pen-rack shown in Fig. 56 is made of a strip of wood 6 inches long, ¾ inch wide, and ¾ inch thick (Fig. 61), with a medium-sized spool mounted upon each end. Cut the strip slanted on the ends, and nail to the sides of the spools in the manner shown in Fig. 61.

Only one spool is used for

The Desk Blotter (Fig. 57), that one forming the handle (*A*, Fig. 62). The base block (*B*, Fig. 62) is a piece of a box-board 2½ inches by 5 inches in-size, and the block *C* is 2½ inches long and 1 inch wide. Get a screw long enough to extend through handle *A*, through block *C*, and part way into base block *B* (a screw with a round head will look neatest,) and screw the three pieces together. If the screw-head is smaller than the hole in the spool handle, support it by a small metal washer slipped over the screw.

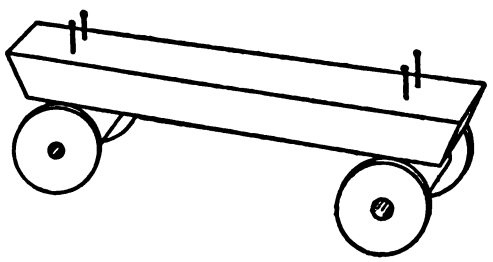


FIG. 61. — Nail the Base of the Pen-Rack to the Sides of the Spools, like this

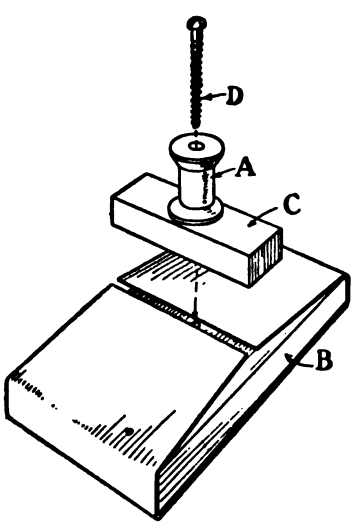


FIG. 62.—Block C holds the Blotter of the Blotter-Pad in Place

Figure 62 shows how the blotter is cut to fit the bottom of the base block, and folded up over the end to the center of the top.

The ends are held to the base by block *C*. To release the ends for changing the blotter, it is only necessary to give block *C* a half turn, so that it extends lengthwise of the base block. Pad the blotter with an extra piece of blotting-paper slipped between it and base block *B*.

One end of the spool used for the handle of

The Paper-knife (Fig. 58) must be whittled down until even with the sides. Cut the knife blade from a stick, and make it about 7 inches long and ½ inch wide, with its edges whittled thin and sharp. Cut the handle end to fit the hole in the spool handle, and fasten it in this hole with glue.

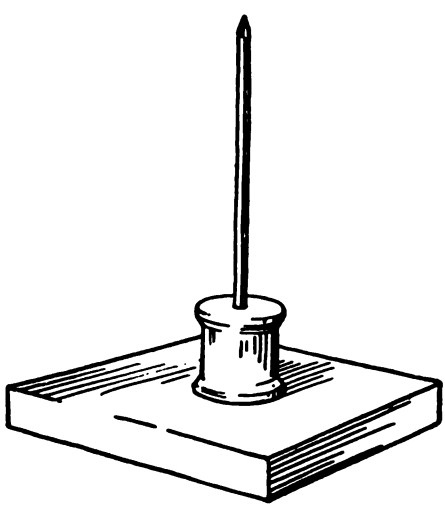


FIG. 63. — A Paper-Spindle

The Paper-spindle (Fig. 63) is of a convenient size for a desk. A 4-inch wire nail, a short silk-thread spool, a base block 2 inches square, and a piece of felt for the under side of the base, are the materials you need to make it. Enlarge the opening in one end of the spool so the head of the nail will fit down

into it. Then drop the nail through the hole, nail the base to the under side of the spool, and glue the felt to the base.

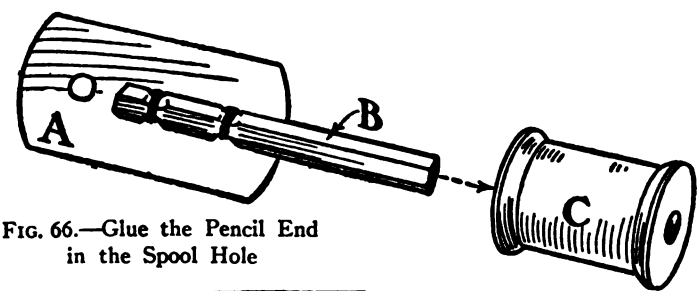


FIG. 66.—Glue the Pencil End in the Spool Hole



FIG. 67. — Bind the Razor-Blade Between the Pencil Halves

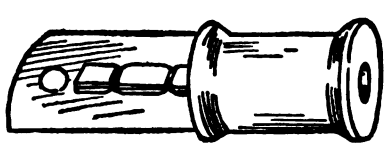


FIG. 65 — The Ripper



FIG. 64 — A Toothpick Holder

The Toothpick Holder (Fig. 64) is large enough for eight or nine toothpicks. After staining the spool, glue felt or cardboard to one end to form a bottom to the holder.

Every woman needs

A Ripper for the sewing cabinet, and Fig. 65 shows one that is easily made. One of father's safety-razor blades, a short piece of pencil, and a spool (*A*, *B*, and *C*, Fig. 66) are required to make it.

Split the pencil into halves, remove the lead, and notch the edges in two places near one end, spacing the notches the same distance apart that the holes in the razor blade are spaced (Fig. 67). Slip the blade between the pencil halves, and bind in place with strong linen thread passed through the holes and around the notches in the pencil. Then glue the free end of the pencil into the hole in the spool handle, and the little knife will be ready for use. The end hole in the blade may be used as a means of hanging the knife on a nail in a sewing cabinet.

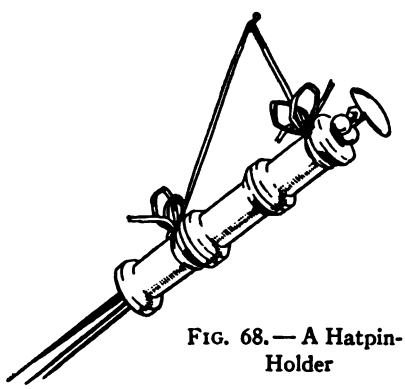


FIG. 68. — A Hatpin-Holder

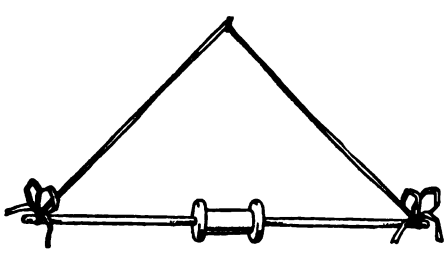


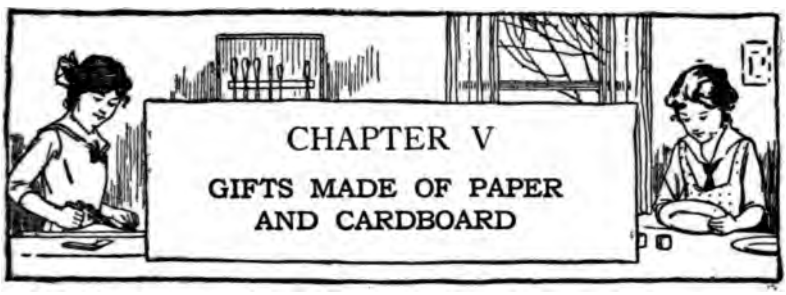
FIG. 69. — A Necktie-Rack

The Hatpin-Holder illustrated in Fig. 68 is made of



four spools of equal size, fastened end to end with brads. Tie a loop of narrow baby ribbon to the top spool, in the manner shown, to provide for hanging the holder upon the wall.

The Necktie-rack (Fig. 69) is made of a ribbon spool slipped over a stick 16 inches long, with a piece of ribbon tied to each end of the stick. The stick will be held far enough away from the wall by the spool flanges, so that neckties can be slipped over it easily.



CHAPTER V

GIFTS MADE OF PAPER AND CARDBOARD

IT'S lots of fun making Christmas gifts out of paper and cardboard, and you will be surprised to find how inexpensively you can provide something useful and pretty for those whom you wish to remember. It is likely that some of the material can be found at home, and a considerable saving in the cost of the rest can be made by getting your friends to buy with you, because often you have to pay as much for a small quantity of material as for three or four times that amount.

If You Want to Earn Pocket-Money, I know no better way than that of making up a lot of small gifts like those I am going to show you how to make, and selling these to friends. Ask your druggist, or a stationer, or the proprietor of a fancy-goods shop to display some of your samples in his windows early in December, and you will have more orders than you can attend to, because articles such as these are always in very great demand just before the holidays.

The Football Calendar in Fig. 70 is a novel gift that brother will appreciate for his room. The football is made of cardboard. To make it symmetrical, the edges must be curved alike, and the surest way of

getting them so is by means of a paper pattern (Fig. 74). To make this pattern, take a piece of paper 7 by 9

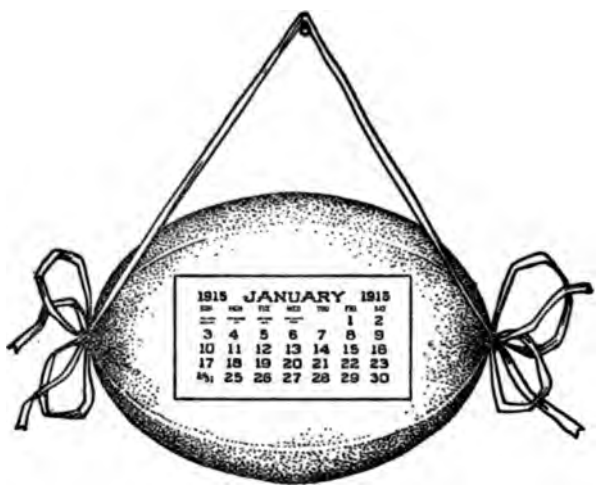


FIG. 70. — A Football Calendar.

inches in size, fold it along its center as indicated by dotted lines in Fig. 71, bringing corner *A* over to corner *B* (Fig. 72), then fold it again, bringing corner *A* to corner *C* (Fig. 73). From the folded corner measure off a distance of 3 inches along the short folded edge, and 4 inches along the long folded edge. Then draw an arc of an ellipse between the points marked off (Fig. 73), cut along the arc, unfold, and you will have the pattern shown in Fig. 74. Place the pattern upon the cardboard, mark out around it, and cut out the piece.

Color the football with brown crayon or water-color, and shade the surface to make it look round.

Buy a small calendar-pad at the stationery store, and paste it to the center of the football. Then tie a bow in each end of a piece of baby ribbon long enough

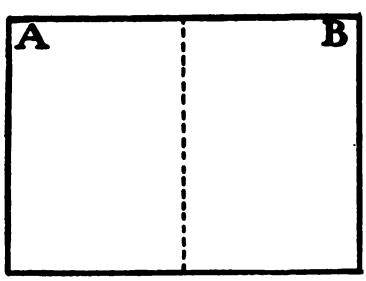


FIG. 71

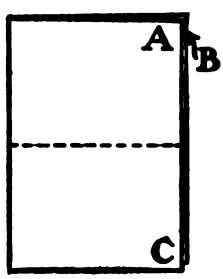


FIG. 72

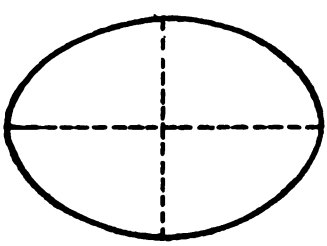


FIG. 74

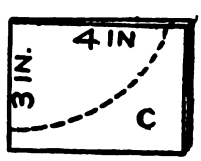


FIG. 73

FIGS. 71 to 74. — Patterns for Football Calendar

to form a loop for hanging up the calendar by, and sew these bows to the ends of the football.

Father or mother will be pleased with

A Blotter-pad like that shown in Fig. 75. It is made of four pieces of blotter 4 inches wide and 9 inches long,

and a piece of cardboard of equal size, held together at the ends with ribbon passed through holes punched near the corners and tied in bows.

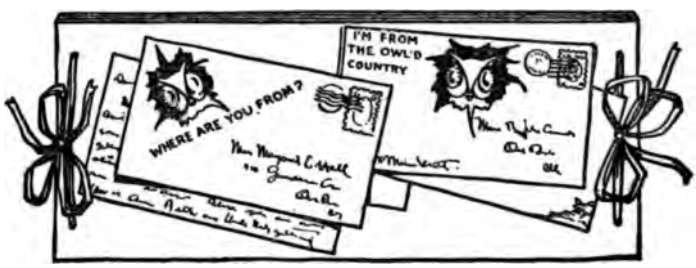


FIG. 75. — A Blotter-Pad

On the top piece of cardboard mark out two envelopes with a piece of letter-paper indicated beneath each, and draw an owl's head peeking out through each envelope (Fig. 75). Beneath one owl's head print the words "Where are you from?" and beside the other head print "I'm from the owl'd country;" then address the envelopes and stick a cancelled postage-stamp upon each.



FIG. 76.— A Pin-Cushion

The Japanese Pin-cushion in

Fig. 76 consists of a small Japanese doll with a cushion tucked under each arm, seated upon a piece of heavy cardboard. Use a piece of cardboard 4 inches square for the base, and cover it with bright colored silk. Sew the doll upon this base. Make the pincushions out of silk stuffed with cotton.

The Heart-shaped Needle-book shown in Fig. 77 has a pair of covers made of two pieces of cardboard measuring 3½ inches each way, and four leaves of the same shape and size cut out of white or pretty colored flannel. Place the flannel hearts between the covers, and pierce two holes through both covers and leaves each side of the center of the top. Then pull a piece of narrow ribbon through the holes, and tie a small bow. Fasten pieces of ribbon to the lower points of the heart, both front and back, by which to tie the little case shut when not in use. Mark "Needles" upon the front cover with ink or water-colors.

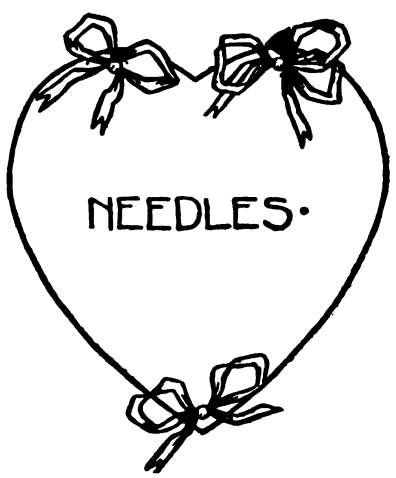


FIG. 77. — A Needle-Book

The Book-marker in Fig. 78 requires 1¼ yards of No. 7 white satin or grosgrain ribbon, and a fancy-work ring. Cut the ribbon into two pieces, one piece 12

inches long and the other 24 inches long, and pull each halfway through the fancy-work ring and fasten with a few stitches. Notch the ends of the ribbons, as shown in Fig. 78, to keep them from fraying, then



FIG. 78.— A Book-Marker

letter the following verse, with black ink or water colors, placing one line upon each ribbon end:

"Not mine to tell
If the book be good;
But I keep my place,
As a marker should."

The Corner Book-marker shown in Fig. 79 slips over the corner of the page you want to mark. To make it, take a piece of white letter-paper 7 inches square, fold this in half, diagonally, and cut along the folded line. Then take one-half (Fig. 80) and fold it in half again. The dotted line in Fig. 80 shows where to fold. Punch holes through

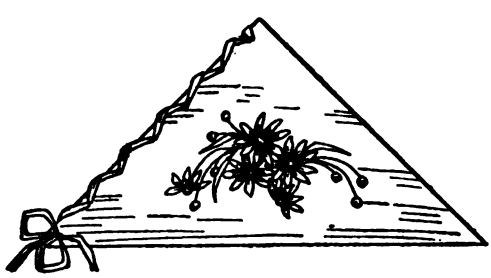


FIG. 79. — Another Book-Marker

the folded piece near one open end (these are indicated on the unfolded piece), and with narrow ribbon lace the edges together, and tie the ribbon ends in a bow.

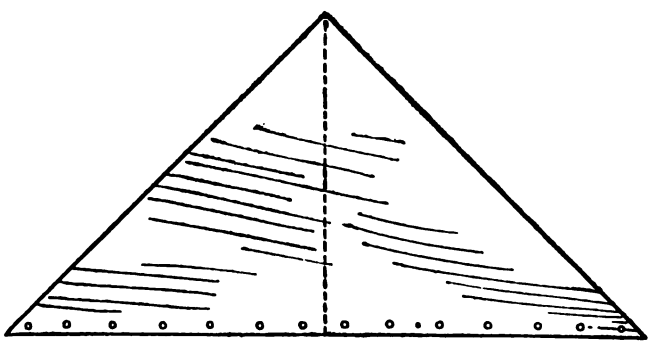


FIG. 80. — Pattern for Book-Marker

Cut a picture from a magazine and paste it upon one face of the marker, or if you can draw a design upon it, do that, and color the design with water-colors or crayons.

The Pin-case shown in Fig. 81 requires two pieces of cardboard each 6 inches long and 1½ inches wide. Cover each piece with pretty silk, turning over the edges of the silk and basting on the wrong side as shown in Fig. 82. Then lay the pieces together, and sew

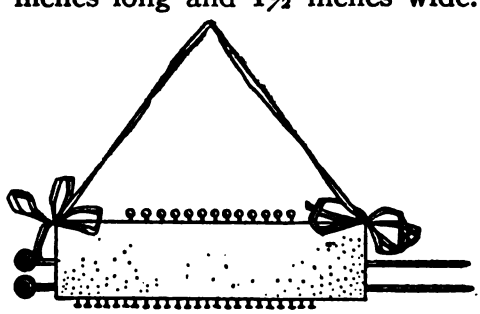


FIG. 81. — A Pin-Case

the edges over and over. Fasten a ribbon to the ends of one long side by which to hang up the case (Fig. 81).

The Black-cat Match-scratcher, shown in Fig. 83, was originated by a lad who made and sold about three thousand copies at 10 cents apiece. The success obtained with this scratcher is an instance of what a girl might do in making and selling articles that please the popular fancy. Scratchers are not as popular nowadays as they were twenty years ago, before electricity came into such general use for lighting purposes, but they probably always will be used while matches are manufactured, so I have included the black-cat design in this chapter.

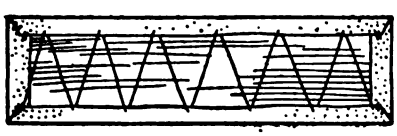


FIG. 82. — Detail of Pin-Case

The black-cat match-scratcher has a 6 by 10 inch cardboard back, and the cat is cut out of black sandpaper and glued upon this back. The cat whiskers, and the lettering "Scratch my Back!" are put on with pen and ink. Draw a pattern of the cat, 5 inches high, upon a piece of paper, then cut this out, and mark out around its edge upon the piece of sandpaper. Cut the sandpaper with a pair of scissors, and paste it to the cardboard back with flour paste. Punch a pair of holes in the top edge of the cardboard back, and attach a hanger of baby ribbon, as shown.

Candle-sticks are coming more and more into use

as ornaments, and to have a pair on the mantel-shelf, and one on the library table or desk top is quite the thing. The three designs illustrated on the following pages are of unique form, and you girls will find them interesting things to make. As they are made of cardboard, it is best not to light the candles. Burn each candle just enough to give it a used appearance, then keep it in the candle-stick unlit.



FIG. 83. — A Match-Scratcher

A Simple Candle-stick with a small box for a base is shown in Fig. 84. The box should be about 2 inches wide and 3 inches long, which is a size easy to pick up. In this box fit a piece of cardboard that has its edges turned down and a hole cut through its center to receive a candle (Fig. 85), and glue the turned down edges to the sides of the box. Figure 86 shows how to fold a cardboard strip for the handle. One end of this is stuck through a slot in one side of the box and is glued to the box bottom; the other end is slipped into the box and glued to the side.

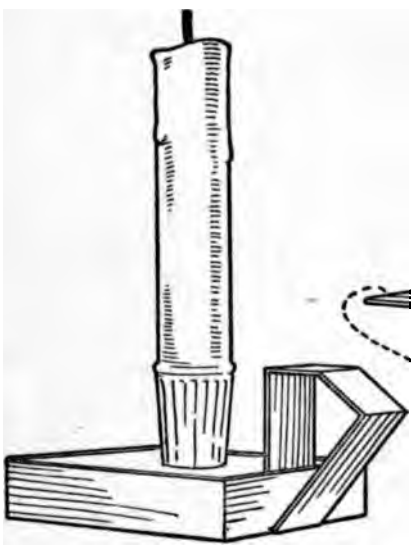


FIG. 84

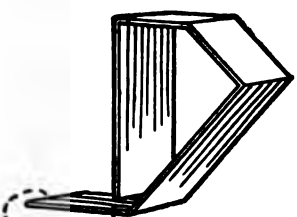


FIG. 86

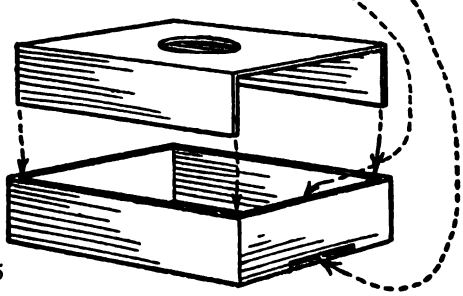


FIG. 85

FIG. 84. — A Candle-Stick with a Box Base
FIG. 85. — The Base
FIG. 86. — The Handle

Another Design for a Candle-stick, with a pill-box for a top, is shown in Fig. 87. Figure 88 shows how a hole is cut through the center of the box bottom for

the candle to slip through, also how slots are cut through the bottom to receive the ends of the four supports. A pattern for the supports is shown in Fig. 89. Figure 87 shows the relative proportions of the box top and the supports. After making and cutting out one support, use it as a pattern for marking out the other three. The two slots *A* (Fig. 89) are provided for the cross strips to stick through. Figure 87 shows how these cross strips connect and brace the supports. The upper pair of braces support the candle. Glue the ends of the crosspieces in slots *A*, and glue one crosspiece to the other at their intersection.

FIG. 88

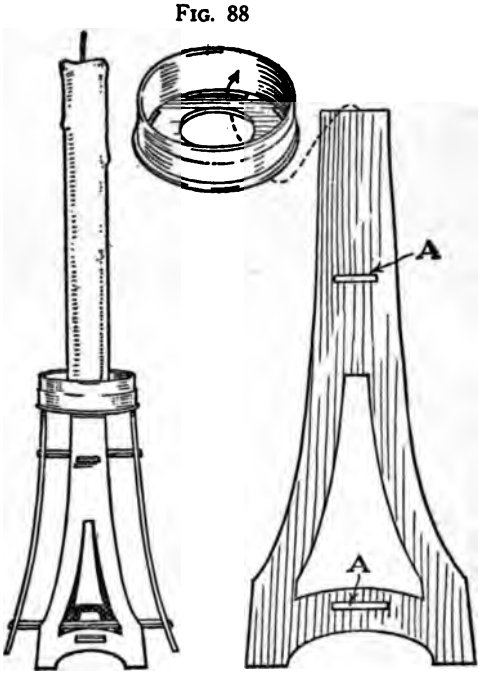


FIG. 87 FIG. 89

FIG. 87. — Another Design for a Candle-Stick
FIG. 88. — The Pill-Box Top
FIG. 89. — Pattern for Side of Base

A Candle-stick with a Shade, like that shown in

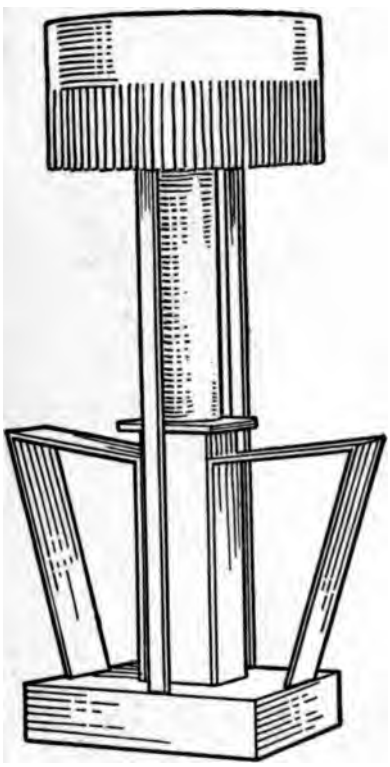


FIG. 90. — A Candle-Stick with a Shade

Fig. 90, makes a unique mantel ornament. The base of this model is a small cardboard box, turned bottom side up (Fig. 91). The center post is folded out of one piece of cardboard, and a flap is provided on one edge to lap and glue to the opposite edge. The top cap projects over the sides of the support all around, and it has a hole cut through its center large enough for the candle to slip through. This post is glued to the center of the base, and it is braced with the candle-stick handles (Fig. 93). After preparing the handles, cut the two pairs of slots *A* and *B* (Fig. 91) through the base, for the handle ends to stick through. Glue the inner upright of each handle to the candle-post, glue the end of the outer upright to the end of the box, and bend up the end of the inner upright and glue to the under side of the box bottom.

The Candle Shade is made of a band of cardboard bent into a ring and covered with a strip of paper

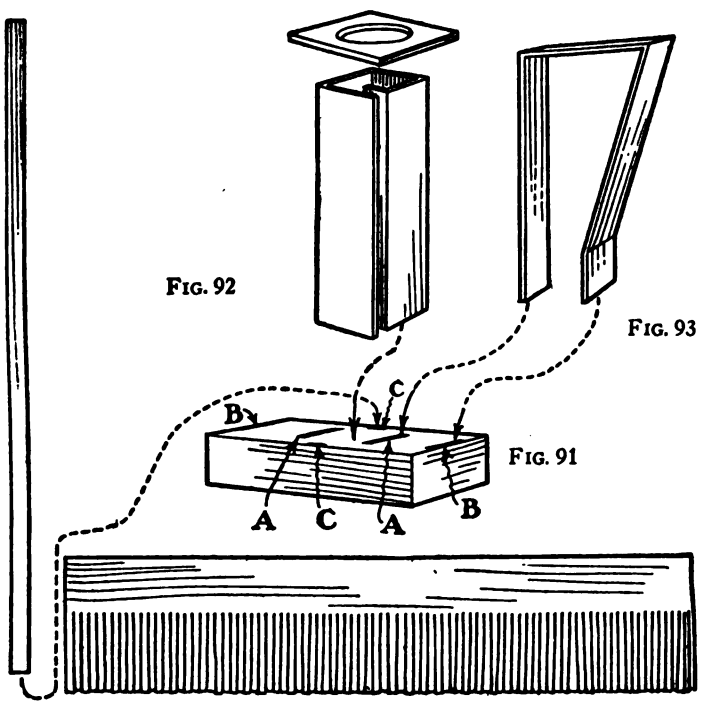


FIG. 95 FIG. 94

FIGS. 91 to 95. — Patterns and Details for Candle-Stick. Shown in Fig. 90

that has been slashed along its edges (Fig. 94) to form fringe. Red paper will look best for the covering. The supports for the shade are a pair of cardboard strips (Fig. 95). Glue the upper end of these to the inside of the shade; stick the lower end through a

pair of slots in the base (*C*, Fig. 91), and glue to the box sides.

You may try your hand at

Decorating the Cardboard, when you have completed the candle-sticks. Use different tints of water-colors.

For making the desk calendars shown in Figs. 96,

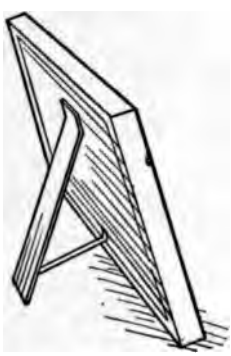


FIG. 97. — End View

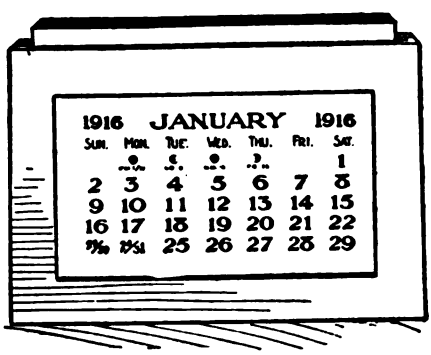


FIG. 96. — A Desk Calendar

100 and 103 you will need several calendar-pads from which to cut the names of the months, days of the week, and the dates. These can be obtained from advertising calendars.

The Desk Calendar in Fig. 96 has a cardboard case (Fig. 98), and six calendar cards (Fig. 99). First make the cards, then the case. The size of your calendar-pad will determine the size of the cards. Figure 99 will give you an idea of the relative size. The card tops must extend above the case as shown. Use a light-weight cardboard or heavy letter-paper for the cards.

You will see by Fig. 99 that one month of the calendar is pasted upon each side of each card. Be careful to get the margins equal so that the printing will center upon the opening in the front of the case.

Cut the front of the case from cardboard, with the opening of the right size so that there will be a margin of about ¼ inch around the calendar, and make the margin around the opening about ½ inch wide. Use a very sharp knife so that the edge will cut straight and smooth. Mark out back *B* with front *A* as a marker,

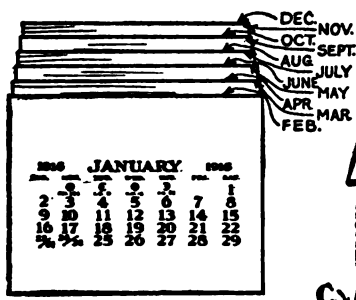


FIG. 99. — Cards for Calendar

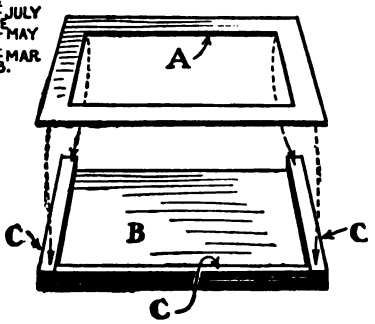


FIG. 98. — Details of Calendar Frame

and glue enough of the strips *C* along the side and bottom to make a thickness a trifle greater than that of the six calendar cards.

To assemble the case, bind together *A* and *B* with paper lapped over and glued to their edges. Paste a piece of tinted paper on the front to conceal the binding strip. Figure 97 shows how to fasten a cardboard

strip to the back of the case to support the calendar. With the case finished, a new set of cards each year will keep the calendar up to date.

Perhaps you would prefer

A Perpetual Calendar to the one just described.



FIG. 100. — A Perpetual Calendar.

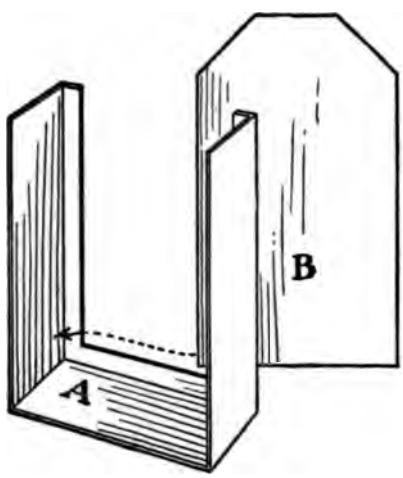


FIG. 101. — Details of Frame

The calendar in Fig. 100 requires a small cardboard box for a case (*A*, Fig. 101). Remove one end of the box, then cut away the bottom, with the exception of a margin of ¼ inch along the sides and remaining end. Back *B* (Fig. 101) fits between the box sides, and extends 1 inch above them. Glue its edges to the sides of the box.

There are sixteen calendar cards (Fig. 102), two for the "days", eight for the "dates", and six for the

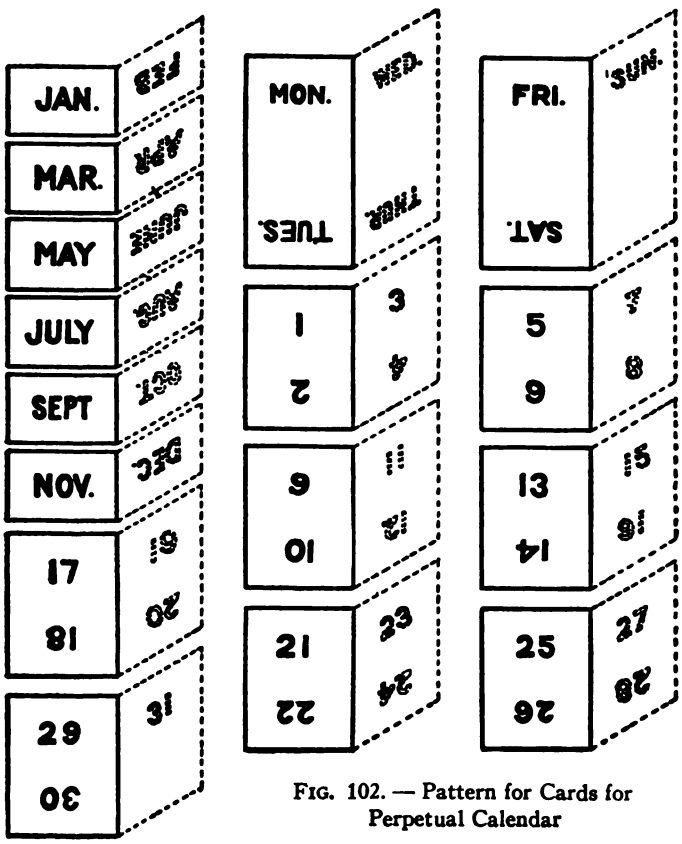


FIG. 102. — Pattern for Cards for Perpetual Calendar

"months". Cut the "date" cards two-thirds of the length of the "day" cards, and the "month" cards one-half of the length of the "date" cards. The

calendar-pad from which you cut the "days", "dates", and "months" should be printed in heavy, clear type. Arrange and paste the printing in the manner shown in Fig. 102. The dotted-in portions of the diagrams indicate the reverse side of the cards.

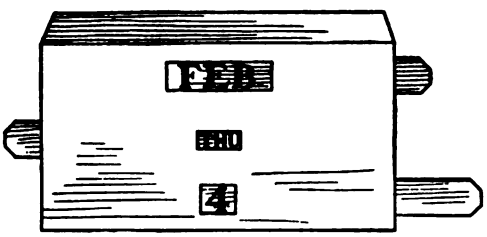


FIG. 103. — Another Form of Perpetual Calendar

Another Form of Perpetual Calendar is shown in Fig. 103. This one has a case made out of a cardboard box of the kind that slides into a sleeve cover (Figs. 104 and 105). Cut the openings *A*, *B* and *C* (Fig. 104) through the sleeve cover, and paste the three strips *D* (Fig. 105) upon the box bottom for the "month", "day" and "date" strips to slide upon. Figure 106 shows the relative length and width of the slide strips, and Fig. 107 the arrangement of the calendar letters and numbers. Fourteen strips are shown in the diagram, but by using both sides only seven will be necessary.

Every girl will be interested in making

A Recipe Cabinet like that shown in Fig. 108, in which to keep her favorite cooking recipes. There is a place in this for every kind of recipe, and, with a guide-card to show just where each recipe has been filed, it is possible to find exactly what is wanted when it is wanted.

Make a cabinet for mother, then make another for your own collection. The work is easy and is quickly done. Any cardboard box can be used for working

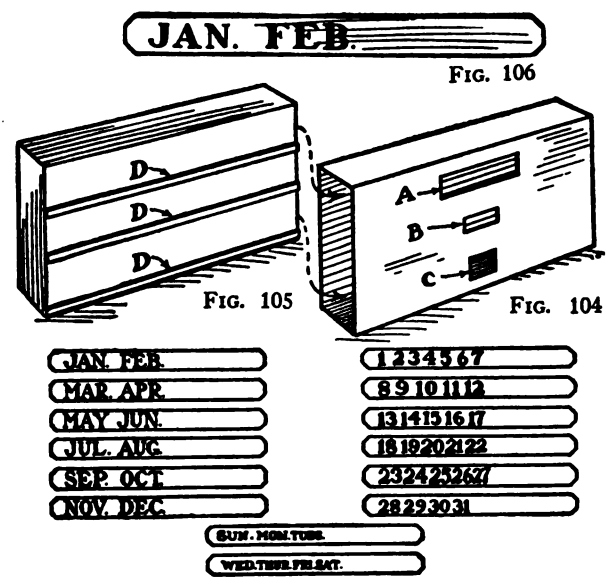


FIG. 106

FIG. 105

FIG. 104

FIG. 107

FIGS. 104 and 105. — Box and Cover Used for Perpetual Calendar
FIG. 106. — Detail of "Month" Slide
FIG. 107. — Detail of "Month," "Day" and "Date" Slides Required

material. Mark out the bottom, two sides, and two ends in the form shown in the pattern of Fig. 109. Draw the lines with ruler and pencil, using the dimensions given. Then, when you have marked out the piece, cut out along the outside lines. With a pocketknife score along the outer lines of the bottom piece,

as indicated by dotted lines, and bend up the side and end pieces until their ends meet. Bind the corners together with strips of linen, coated with glue and lapped over the corners as shown in Fig. 111.

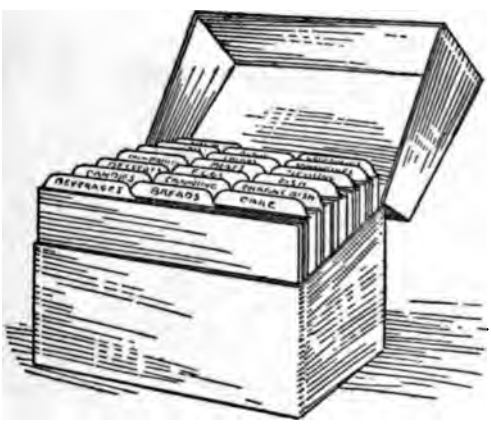


FIG. 108. — A Recipe Cabinet

The pattern for the cover is shown in Fig. 110. Mark it out in the same way that you marked out the box. Score it as indicated by the dotted lines, and bend up the sides and ends until their ends meet. Corner *A* (Fig. 111) shows how the corners are brought together, and corner *B* shows how they are bound with the linen strips.

Hinge the cover to the cabinet box with a cloth hinge strip similar to the strips bound over the corners. Make the hinge extend the full length of the cover. Then with the cover attached, get a piece of light-weight cambric of a dark gray or other durable color, and cover the outside of the cabinet, gluing the cloth to the cardboard, and stretching it tightly and neatly over the corners.

The Indexed Guide-cards are of cardboard, and are made as shown in Fig. 112. They should measure

3⅝ inches high by a length equal to a trifle less than the inside length of the box. Divide the upper edge of each card into three parts, and prepare the projecting tabs as shown, making each a trifle longer than one-third

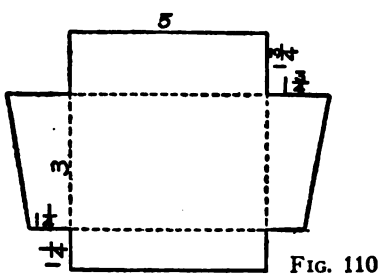


FIG. 110

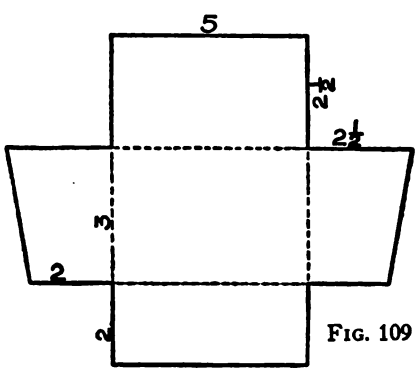


FIG. 109

FIG. 109. — Pattern for Recipe Cabinet Box
FIG. 110. — Pattern for Cover

of the length of the card, and ⅜ inch high. Cut away the card either side of the tab. The first card, you will notice, has a tab on the left end, the second has it in the center, and the third on the right end. The

fourth is the same as the first, the fifth the same as the second, the sixth the same as the third, and so on.

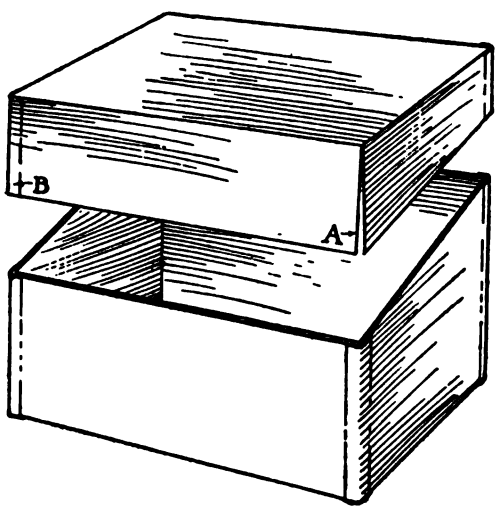


FIG. 111. — How to Reinforce the Corners of Recipe Cabinet

You can make up your own recipe classifications, but the following cover about every heading necessary: Beverages, Breads, Cake, Candies, Canning, Chafing Dish, Desserts, Eggs, Fish, Frozen Desserts, Meats, Pickling, Preserves, Salads, Sandwiches, Sauces, Soups, Vegetables, Miscellaneous. For the cards on which the recipes are to be written, use a heavy grade of note-paper. Cut each to the length and height of the index cards. Fifty cards will probably be enough to start with.

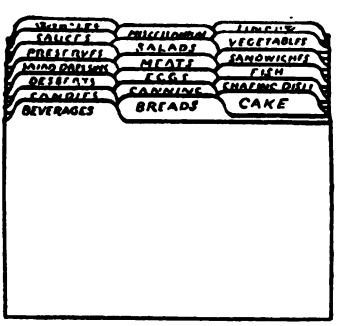


FIG. 112.—The Indexed Guide-Cards



CHAPTER VI
CRETONNE GIFTS

DAINTY gifts covered in cretonne are certain to find a ready welcome in any household, and such a variety of things can be made that you will have no difficulty in filling a want of each one whom you wish to remember on Christmas day and birthdays. Look over the articles shown upon the following pages, and see if you don't think that any one of them would be appreciated.

Take the article in Fig. 113, for instance. Who would not like to own

A Pair of Book-ends as unique as these? The secret of making satisfactory book ends is in properly weighting them so that they will not upset. This pair, made of sirup cans, covered with cretonne, are weighted by a filling of sand, and therefore stand very solidly.

To make the tin-can book-ends, select a pair of cans of exactly the same size, fill each with sand and fit the covers on securely; then cut a piece of cretonne large enough to fit around the sides of each can, hem the top and bottom edges, run a piece of twine through each hem for a gathering-string, and pull up the strings so as to gather the ends as indicated in Fig. 113. Sew

a fancy button, or a cretonne-covered button, to the center of the top.

For Covering the book-ends, and other articles of similar size, cretonne with small patterns is the most desirable, and for articles which are likely to soil through much handling, cretonne with dark backgrounds is preferable.

A Twine-holder like that shown in Fig. 114 is a handy household article that is quickly made. This requires a sirup can. As an outlet for the string, a



FIG. 113. — Book-Ends

hole must be pierced through the exact center of the can bottom (*A*, Fig. 115), and holes ½ inch apart must be pierced through the top rim to provide a means of fastening the top edge of the cretonne. The holes can be perforated by means of a nail and hammer.

Gather the cretonne on the bottom, turn the top edge over the rim, and sew through the perforations in the rim. Make a hanger for the twine-holder out of cretonne or ribbon.

The Hanging Work-box in Fig. 116 requires a square cardboard box. Remove two adjacent sides of both the box and the cover (Fig. 117), then stitch the cover to the box (Fig. 118). The cretonne may either be stitched over the open edges of the box, or be glued to the cardboard. Sew a doubled strip of cretonne, or a ribbon, to the open corners for a hanger.

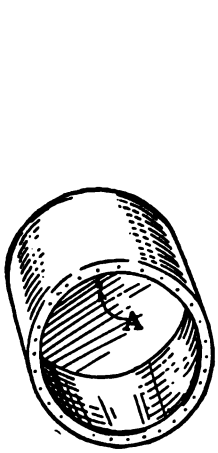




FIG. 114. — A Twine-Holder.
FIG. 115. — Detail of Can for Twine-Holder.

A Dainty Telephone-book like that in Fig. 119 provides a handy directory for numbers used frequently, and numbers which may be wanted quickly in cases of emergency. The covers are of cardboard 6 inches wide and 8 inches long, and are hinged together by the cretonne covering. Lap the cretonne over the edges as indicated in Fig. 120,

glue it to the cardboard, and make a pocket on one edge, to hold a pencil.

Cut sheets of writing paper of the right size to extend a trifle over the lapped edges of the cretonne, and glue them in place; then divide the paper into spaces, and index the spaces (Fig. 120). A fancywork ring sewed to the center of the top edge provides a good hanger.

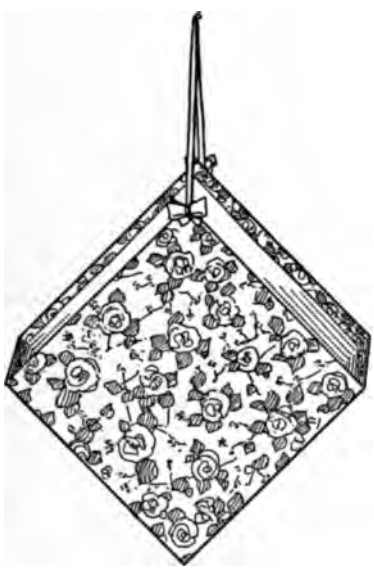


FIG. 116.— A Hanging Work-Box

The Music-case in Fig. 121 has a canvas foundation cut of the dimensions shown in Fig. 123. The dotted lines around the edges of this diagram indicate how the edges of the cretonne covering turn over, and the dotted lines each side of the portion marked *B* indicate where portion *A* turns up and portion *C* turns down, to close the case (Figs. 121 and 122). A pair of buckles, with cretonne straps to pass around the case, and a cretonne handle, will complete the music-case.

A Dresser Set of cardboard boxes covered with cretonne of a small pattern, in colors that will harmonize

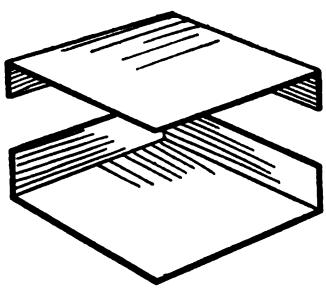


FIG. 117

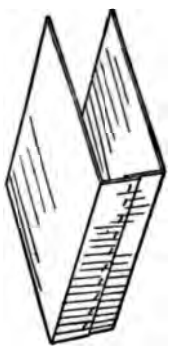


FIG. 118

FIGS. 117 and 118. — Details of Work-Box

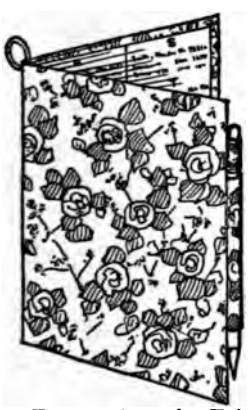


FIG. 119. — A Telephone-Book

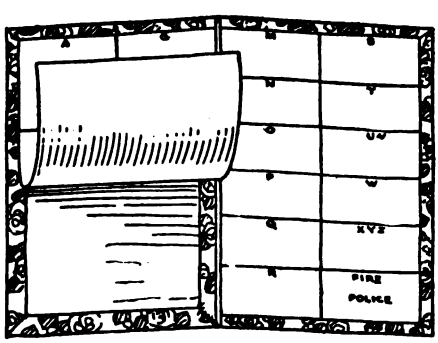


FIG. 120. — The Inside of the Telephone-Book

with the furnishings of the bedroom is something every girl would be proud to own. All the articles necessary are easily made. The illustrations upon the following pages show a hatpin-holder, two pin-cushions, a glove-box, a brush-and-comb tray, and a trinket-chest,

and you can make a handkerchief-box, and other pieces, in a similar manner.

The Hatpin-holder (Fig. 124) requires a long, slender box such as hatpins are sold in. Sew or glue the cover



FIG. 121. — A Music-Case

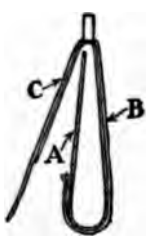


FIG. 122. — End View of Music-Case

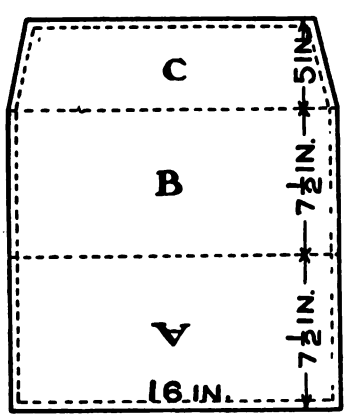


FIG. 123. — Pattern for Music-Case



FIG. 124. — A Hatpin-Holder

on the box, cut off the end so that the box will be several inches shorter than the hatpins, and cover

with cretonne, pulling the cloth tight over the sides and closed end, lapping the edges, and sewing. Then tie a loop of ribbon near the ends of the holder by which to hang it up.

The Pin-cushion shown in Fig. 125 has a small square box-cover for a foundation. This cover is filled with sawdust, a covering of cheesecloth is fastened over the top to hold the filling in, and a second covering of cretonne is fastened over the cheesecloth. Glue the top covering to the edges of the cover. Finish by sewing a band of cretonne around the edge.

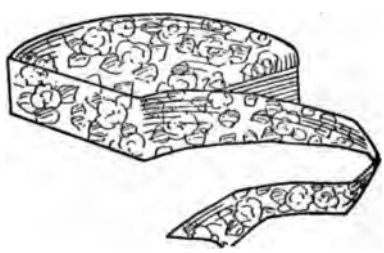


FIG. 125. — A Pin-Cushion

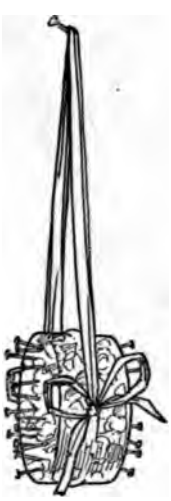


FIG. 126.—A Hanging Pin-Cushion

The Hanging Pin-cushion (Fig. 126) requires two round pill-boxes. Glue these together, bottom to bottom, as shown in Fig. 127, then fill one at a time with sawdust, cover with cheesecloth, and finish by sewing a band of cretonne around the edge of the boxes, and attaching a loop of ribbon to hang it by.

The Glove-box in Fig. 128 is made of a cracker-box of the form shown in Fig. 129. First cut off the end flaps so

they will be just long enough to turn down and fasten to the inside of the ends (see dotted lines in Fig. 129), and remove the flap on the lid. Cover the outside of the box and lid with cretonne, first; then cut pieces of cardboard to fit the inside, bottom, ends and sides, cover these with padding and then with silk (Fig. 130), and glue in position.

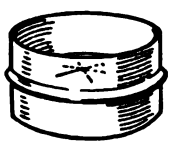


FIG. 127. — Pill-Boxes for Pin-Cushions

Get the cover to a shoe-box for **The Brush-and-comb Tray** shown in Fig. 131. Reinforce the corners with pieces of cardboard folded and glued to them, as shown in Figs. 132 and 133; then put on the cretonne covering. Cut one piece of cretonne of the right size to fit the bottom of the cover and lap over the rim and on to the inside, then, after stitching this in place, cut a piece of cardboard to fit the bottom inside, cover it with cretonne (Fig. 130), and glue this covered piece to the inside of the cover. This completes the tray.

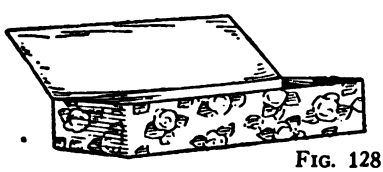


FIG. 128

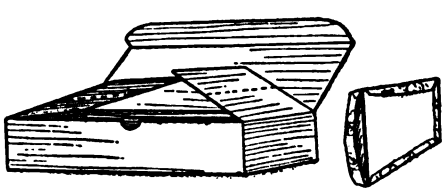


FIG. 129 FIG. 130

FIG. 128. — A Glove Box
FIG. 129. — The Cracker Box Foundation
FIG. 130. — The Padded Inside Ends

Figure 134 shows **A Dainty Trin-**

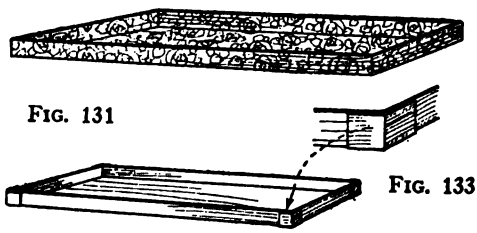


FIG. 131

FIG. 133

FIG. 132

FIG. 131. — A Brush-and-Comb-Tray
FIGS. 132 and 133. — Details of Tray

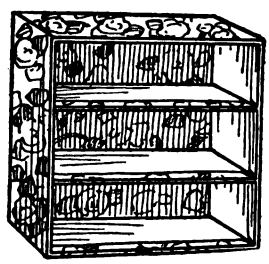


FIG. 135

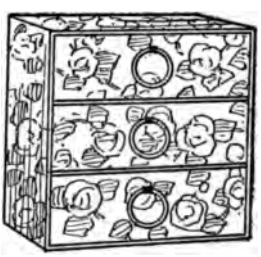


FIG. 134

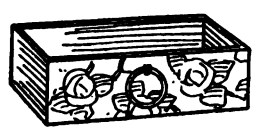


FIG. 136

FIG. 134. — A Trinket-Chest
FIG. 135. — The Case with Partitions for Drawers
FIG. 136. — A Drawer

ket-chest of three drawers. After seeing how it is constructed, you can make yours of as many drawers as you wish.

Small cardboard boxes form the drawers (Fig. 137).

You can get empty spool boxes at a drygoods store. Pile one upon another, and figure out the dimensions of the chest. Then fold a piece of cardboard as shown in Fig. 138, to make a case of the right size for the boxes, and after bringing the folded ends together, bind them with a strip of paper (Fig. 139). Next,

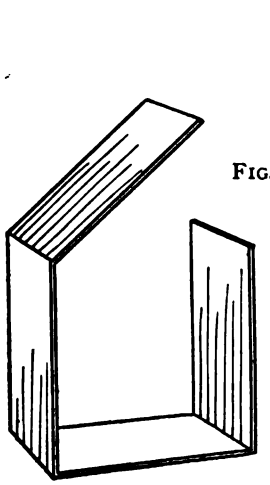


FIG. 139

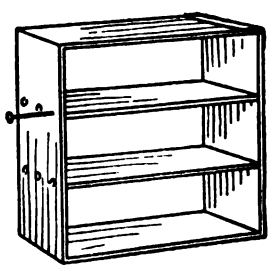




FIG. 138 FIG. 137

FIGS. 137 to 139. — Details of Trinket Chest

cut strips of cardboard for shelves, and fasten these between the ends of the case by running pins through into their ends, as shown in Fig. 139.

When the shelves have been adjusted properly, cover the back, ends, top and bottom of the case with cretonne (Fig. 135), also the front of the drawer boxes (Fig. 136); and sew a fancywork ring to the center of

the front of each drawer (Fig. 134) by which to open it.

A Home Utility-box. How often do you hear mother and father asking for a piece of string, a rubber-band, a tack, or some paste? Whereupon there is hurrying and scurrying from cupboard to cupboard — because when one of these things is wanted it is generally wanted right away — and perhaps the entire house is upset before the hiding place is discovered. Don't you want to save this confusion by providing a utility-box like that shown in Fig. 140? It will require only a little time to prepare it, and just think of what a time-saver it will be to everybody in the house.



FIG. 140. — A Utility-Box.

Any strong cardboard box may be used. The one for the model illustrated was 10 inches wide, 12 inches long, and 3 inches deep, but of course the proportions may be that of whatever box you find.

Figure 141 shows the box partitioned off into twelve compartments, providing receptacles for light-weight and heavy wrapping-twine, shipping tags, gummed

labels, rubber-bands, paper clips and brass fasteners, tacks and pushpins, passe-partout paper, tubes of library paste and glue, bottle of ink, and picture-wire and picture-hooks. The inside of the cover provides pockets into which to slip a pencil, pen, and scissors.

Figure 143 shows how to cut the cardboard strips which partition off the compartments. You will notice that the upper edge of the long strips (*A*) are notched from the top edge down to the center, and that the short strips which cross them (*B*) are notched from the bottom edge to the center. The positions for these notches must be located carefully so as to come at the exact intersections of the partitions, and they must be cut of the right width for the crossing partitions to slip into. By examining the illustrations, you will understand how the partitions interlock. Fasten the strips with pins pushed through the sides of the box into their ends (Fig. 142).

TWINE	TAGS	LABELS	TWINE
RUBBER BANDS	PAPER CLIPS	PAPER FASTRS	TACKS & PUSHPINS
PASSE PARTOUT PAPER	PASTE TUBES	INK	PICTURE WIRE & HOOKS

FIG. 141. — Arrangement of Compartments

The back edge of the cover rim must be separated from the rest of the rim at the corners (Fig. 144), and be glued to the back of the box, for a hinge. Then a strip of linen must be glued to the outside of this rim strip, and be lapped over on to the cover, to reinforce the hinge.

By covering the outside of the box with cretonne

you will greatly improve its appearance. Glue the cretonne to the cardboard.

A Twine-box to keep near the supply of wrapping-paper is a handy article to have in the house. Figures

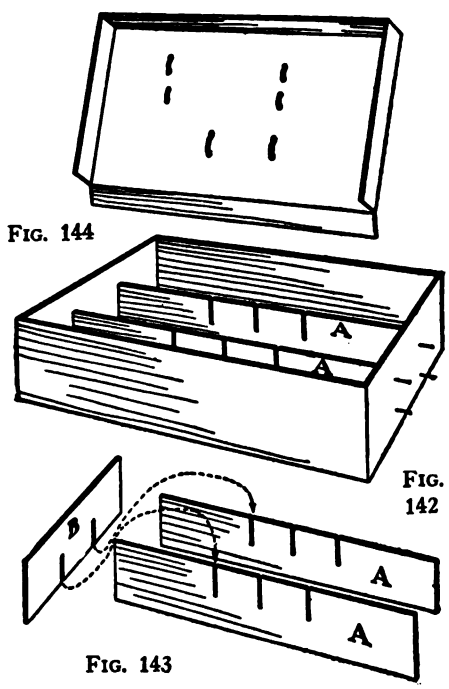


FIG. 144

FIG. 142

FIG. 143

FIG. 142. — Detail of Utility-Box
FIG. 143. — Partitions
FIG. 144. — Cover

145 and 146 show a box made for three balls, one of heavy wrapping-twine, one of light-weight white cotton twine, and one of colored twine.

You can use a large candy-box. Fasten the cardboard partitions between the sides with pins. The rim of the box cover may be left on it, or it may be



FIG. 145. — Twine-Box (Open)

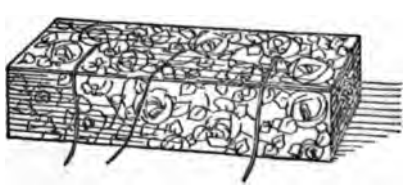
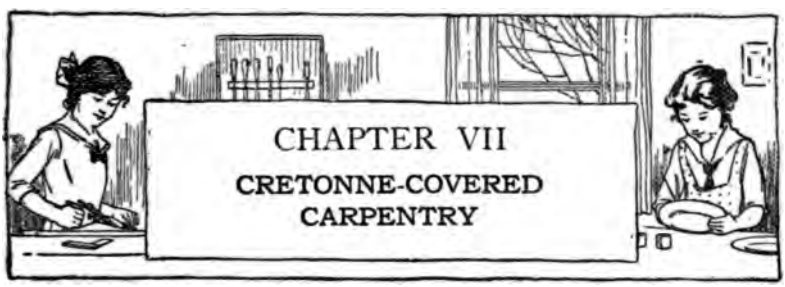


FIG. 146. — Twine-Box (Closed)

removed as in Fig. 145. Punch holes through the cover for the ends of the twine to run through. The outside of the box should be covered with cretonne, to give it a trim appearance.



CHAPTER VII

CRETONNE-COVERED CARPENTRY

THE shops are full of pretty cretonne-covered articles for a girl's room, and so simple are most of these to make that you can easily duplicate them for your own, or your mother's bedroom. The work does not require the skill of a mechanic because almost every imperfection in the woodwork will be concealed by the cretonne. Also, because of the covering, it is possible to use boxes, and since such a variety of shapes and sizes are to be had, many articles can be assembled without altering the boxes in any way.

Every girl needs

A Fancywork-box like that shown in Fig. 148. The only carpenter work necessary is the fastening together of the cover boards with a couple of strips nailed across them as shown in Fig. 150. Place these cross strips close enough to the ends, and make them of the right length, so when the cover is placed on the box they will prevent the cover from shifting lengthwise and crosswise. This makes hinges unnecessary.

The Box must be Covered to conceal the roughness of the boards. A pretty figured cretonne looks well for the outside, and a plain colored lining is best for

the inside. Before the covering is put on, tack a layer of cotton wadding to the wood, for padding. Screw a brass handle to the center of each end.

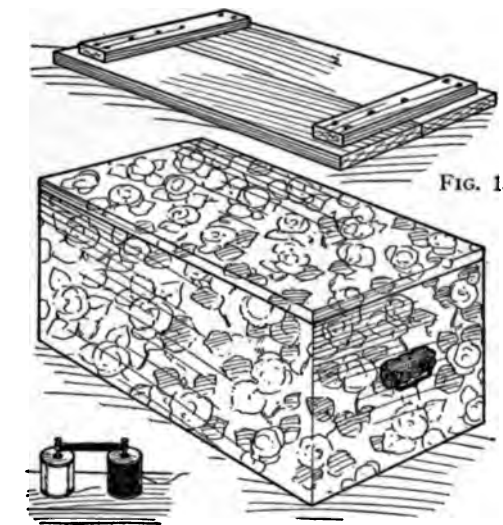


FIG. 150

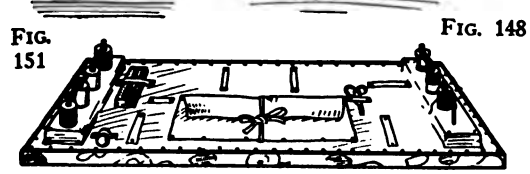


FIG. 148

FIG. 151

FIG. 149

FIG. 148. — A Fancywork Box
FIG. 149. — Arrangements of Pockets and Spool-Racks on Cover
FIG. 150. — How to Batten Together the Cover Boards
FIG. 151. — A Spool-Rack

Figure 149 shows how

A Cloth Pocket and Elastic Tapes should be tacked to the inside of the cover; also how to make

A Spool-rack by driving nails into the cover and slipping rubber-bands over the nail-heads (see larger detail, Fig. 151) to keep the spools from dropping off.

The Fancywork-box with Legs shown in Fig. 152 requires little more work to make than the box just described. The legs are strips 2 inches wide, 1 inch thick, and from 14 to 20 inches long, according to the height of box you want. Sixteen inches is right if you wish to use the box as a bench to sit on. If you cannot saw up the strips yourself, and no one at home can do the work for you, a few pennies will buy them at a carpenter shop. The leg strips must be of equal length, and they must be nailed to the box corners so the tops are even with the top of the box (Fig. 153).



FIG. 152. — A Fancywork Box with Legs

The cover of the fancywork-box should be wide enough and long enough to project ¾ inch over the sides all around. Therefore you must use the cover boards from a larger box. Nail a pair of wooden strips across them to hold them together (Fig. 154). These

strips can be placed upon the under side of the boards in such a position that they will keep the cover from slipping from side to side, and from end to end, when it is placed upon the fancywork-box. By making the cover to lift off, you will save yourself the trouble of putting on hinges.

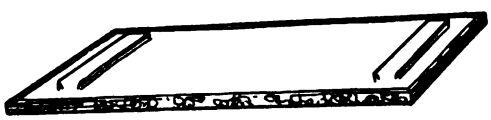


FIG. 154

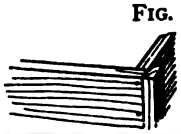


FIG. 153

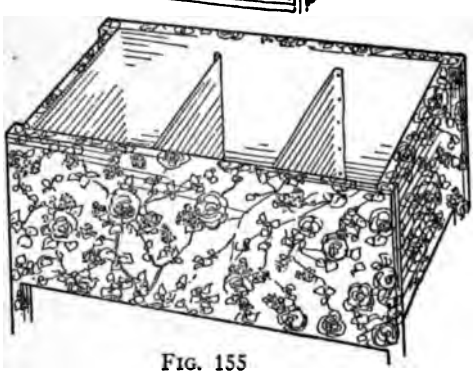


FIG. 155

FIG. 153. — How the Legs are Nailed to the Box Ends.
FIG. 154. — The Completed Cover
FIG. 155. — How the Box is Partitioned off into Compartments

Putting on the Cretonne. Perhaps you can buy a large enough remnant in cretonne for your fancywork-box. The care with which you put on this covering material will determine whether or not the box will be a success. As grocery boxes are more or less rough, and the boards uneven, it is best to cover the wood with some other cloth, first, for a foundation for the cretonne. Stretch the cretonne over each surface

neatly, and use gimp tacks for fastening it. Line the inside of the box with plain colored cambric. Figure 155 suggests how the inside may be divided into compartments by cloth partitions.

In Fig. 156 we have **A More Elaborate Fancywork-box,** though one that is no more difficult to make. Figure 157 shows how the frame is built of two upright strips nailed to one side of the box, and two crosspieces nailed to the uprights. The frame need not be higher than a chair back. Figure 158 shows the cover boards fastened together with crosspieces.

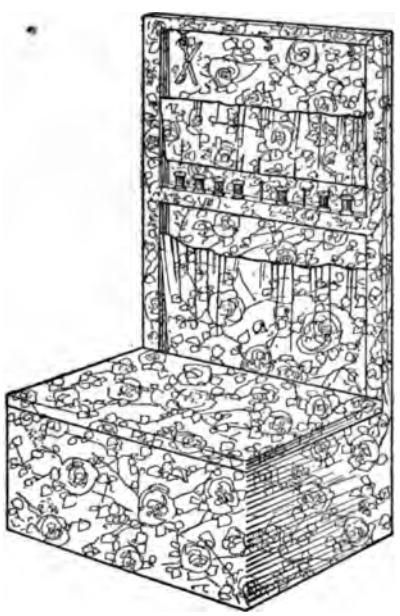


FIG. 156. — A More Elaborate Fancy-work Box

Put on the Cretonne covering in the same way as directed for the other boxes. Figure 156 shows how the frame is covered, with a solid piece tacked over the back, and its edges brought around over the front of the framework strips.

Make pockets out of extra pieces of cretonne, to hold unfinished work, patterns, and notions; and

form a heading on the pocket edges through which to run elastic to keep the pockets closed.

Drive nails into the upper edge of the center cross-piece to make a handy spool-rack, and hooks into the under edge of the top cross-piece for hangers for scissors.

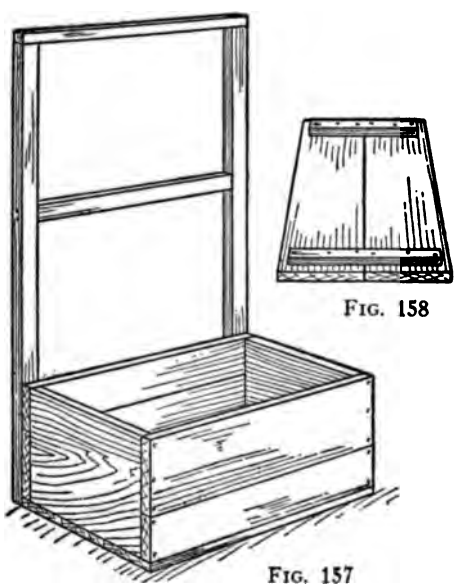


FIG. 158

FIG. 157

FIG. 157. — Framework of Box and Screen
FIG. 158. — The Box Cover

You need a writing-desk for your bedroom— every girl does, and in Fig. 159 I have shown a new idea for a desk —

A Portable Writing-desk. This desk has no legs, being designed to stand upon a table. The front drops down to write upon, just like the drop-leaf of any desk. When the front is closed and hooked, the desk is in a compact form, and it may be lifted to and from the work-table by means of the handle attached to the top. The desk may be stood in some out of the way corner when not in use.

Of course, if you want a desk in a permanent position, it is easy enough to fasten strips to the ends for legs, or the box can be suspended by means of chains, from hooks screwed into a wall.

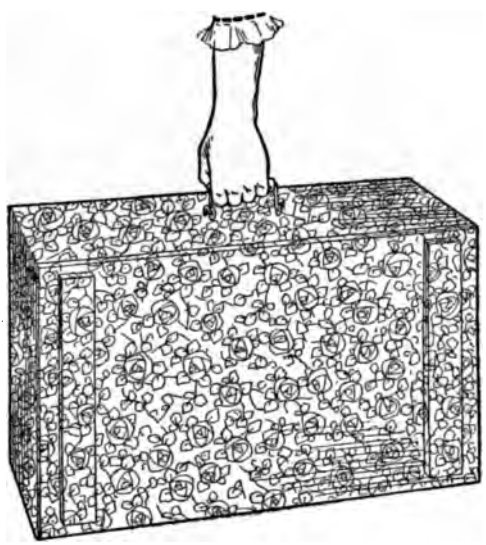


FIG. 159. — The Portable Desk, Closed

A grocery box, together with its cover or some additional box-boards, is needed for working material. The box shown in the illustrations is one in which cans of preserved fruit had been packed, and it measures 21 inches long, 13½ inches wide and 7½ inches deep. It is likely you can get a box of approximately the same dimensions by going to your grocer. Pick out as perfect a box as you can find. The fewer cracks,

knots, and joints that there are in the boards, the less puttying you will have to do when finishing.

After renailing any boards that may be loose, cut the board *A* of a length equal to the inside length of the box, and of a width equal to the inside depth of the box (Fig. 162), and the piece *B* of equal width and 2½ inches high. Fasten piece *B* across the center of board *A*, with nails driven through *A* into the edge of *B*. Then fasten the nailed together pieces in the upper part of the box, as shown in Fig. 161, to form pigeon holes. Nail through the ends of the box into the ends of board *A*, and down through the top into the edge of board *B*, to hold the pieces in place.

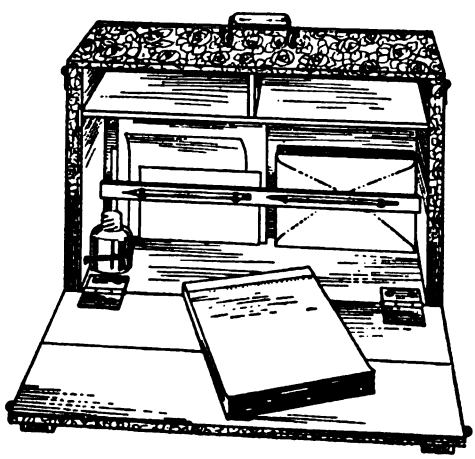


FIG. 160.— The Portable Writing-desk, Open

Strip *C* (Fig. 163) forms the front to

A Rack for Stationery and loose papers (Figs. 160 and 161), and has four screw-hooks screwed into it (Fig. 163) for

Pen and Pencil Racks. Cut this strip of a length

equal to the inside length of the box, and about 2 inches wide, and fasten it between the ends of the box about

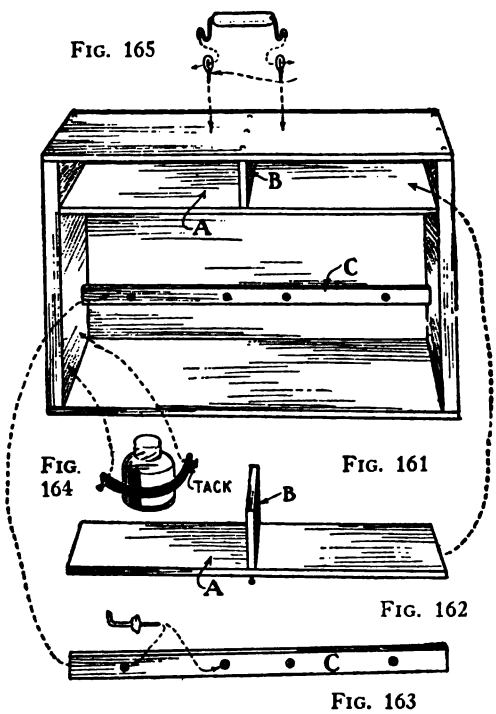


FIG. 161. — How Desk Pigeon-holes and Pockets are Arranged
FIGS. 162 and 163. — The Partitions
FIG. 164. — How the Ink-bottle is Enclosed to Prevent Upsetting
FIG. 165. — Parcel-handle to Carry the Desk by

1 inch out from the box bottom, by driving nails through the box ends into its ends.

An Ink-bottle Pocket. It would not be safe to keep an ink-bottle in your portable desk without fastening

it. There would be too many chances for it to upset. Figure 164 shows a good way of anchoring it. Get a long, heavy rubber-band, or a piece of elastic, and tack its ends to the inside of one end of the desk, as

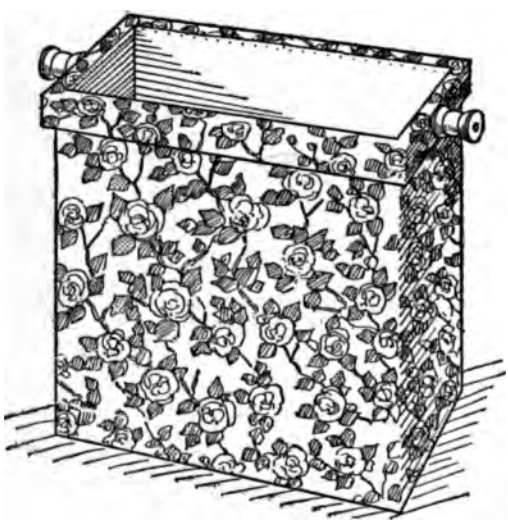


FIG. 166. — A Waste-basket.

indicated in Fig. 161. This will form a pocket into which the bottle may be slipped and kept with safety, because the rubber will hold the bottle tight against the desk end (Fig. 160).

The Drop-leaf is made out of the box-cover boards. Fasten the boards together with strips placed across them near their ends, as shown in Fig. 159. Either nail or screw these crosspieces to the boards, using nails or screws short enough so that they will not

go all the way through the two thicknesses of wood. Hinge the drop-leaf to the inside of the desk bottom with a pair of 2-inch hinges, as shown in Fig. 160. Fasten a small hook to each end of the desk, and screw a small screw-eye into each end of the drop-leaf

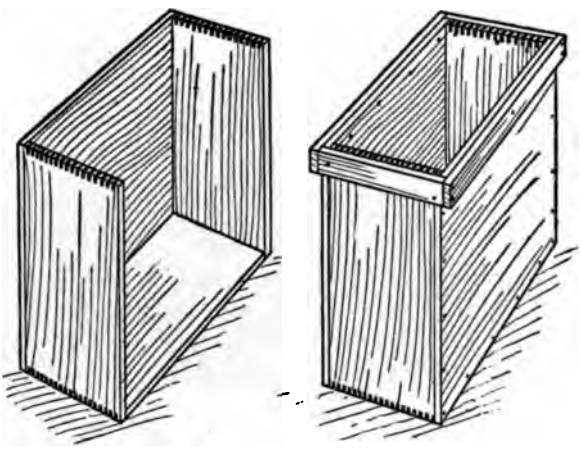


FIG. 167 FIG. 168

FIG. 167. — Soap-Box Foundation for Waste-Basket
FIG. 168. — Box Ready for Covering with Cretonne

in the proper position for the hook to hook into, as a means of hooking the drop-leaf when it has been closed (Figs. 159 and 160).

A parcel-handle will make a satisfactory

Handle for Carrying the desk by (Fig. 165). The ends are best fastened by slipping them through a pair of screw-eyes screwed into the desk top. Perhaps you will be able to get an iron trunk-handle, or one of the

kind of handles they put on cupboard drawers. Either form would make a neater handle, of course, than the parcel-handle.

A Waste-basket like that in Fig. 166 requires a soap-box. Remove one end of the box, as shown in Fig. 167, for the open top of the basket, and nail the

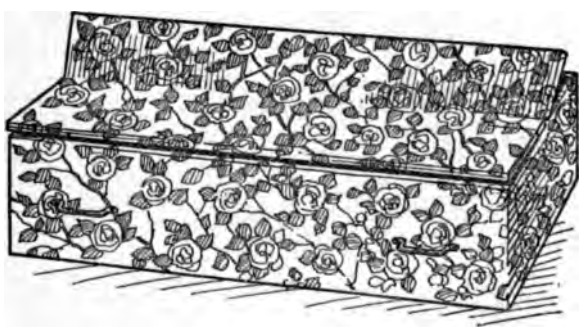


FIG. 169. — A Shirt-waist Box

cover board in place to enclose the side (Fig. 168). The next step, then, is to cut several strips about 1½ inches wide, and nail them around the top edges as a finishing band.

Tack on the Outside Cretonne first, then the inside lining. Lap the cretonne over the top edge, and cut it so that about 1 inch will turn down all around. Then conceal the edge of the cretonne by lapping the lining over it. The lining may be of a plain-colored cambric. The spool on each end forms a handle.

A Shirt-waist Box of the form shown in Fig. 169 is made to slide underneath a bed. It has a pair of

handles screwed to each of the two long sides, so it may be pulled out from either side of the bed, castors on the bottom make it easy to push it under and pull it out, and a double cover makes it possible to pull out the box half-way and open it.

FIG. 171

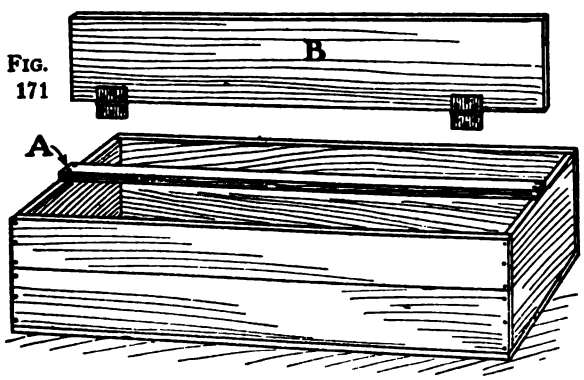


FIG. 170

FIG. 170. — How to Prepare the Box for the Covers
FIG. 171. — One of the Hinged Covers

Because the shirt-waist box must be shallow, it is well to make it long. Having procured the box, it is only necessary to fasten a strip 2 inches wide along the center of the open top, from end to end, for the hinge-strip *A* (Fig. 170), and hinge a board each side of it for the covers (*B*,Fig. 171). That completes the carpentry.

To Cover the Box, before the hinge-strip and covers have been fastened on, is easiest; and the cretonne should be tacked to the hinge-strip and covers, also, before you fasten them in place.

The Handles and Castors should be put on as the finishing touches. Any hardware dealer can supply you with these.

Very few girls own

A Shoe-blacking Case, yet it is an article of great

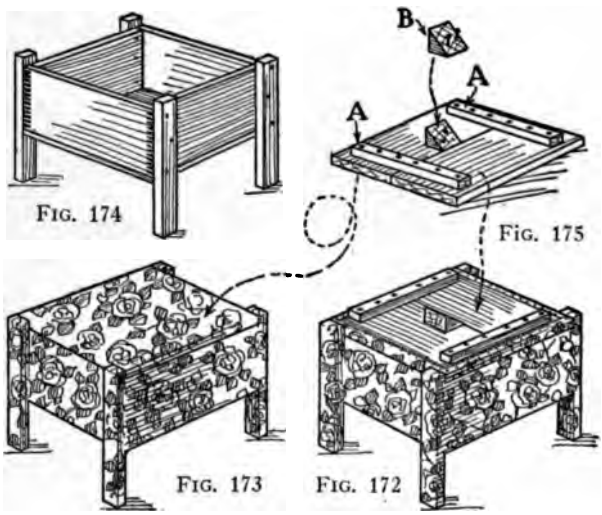


FIG. 172 and 173. — A Shoe-blacking Case
FIG. 174. — How to Fasten the Legs to the Box Corners
FIG. 175. — The Top

importance to one who is particular about keeping her shoes tidy, and I believe that you will want to make one like that illustrated in Figs. 172 and 173 when you see how simple its construction is.

By making the top removable, the inside of the case

may be used as a receptacle for cans and bottles of polish, brushes, and rags; and by padding the under side and covering it with cretonne, the top may be inverted after use, and the blacking-case thus converted into

An Attractive Footstool or tabouret, as you will see by Fig. 173.

Figure 174 shows how four short legs should be nailed to the corners of a square soap-box, with the tops projecting just enough to allow for the thickness of the cover, and Fig. 175 shows how the cover boards should be fastened together with the cross strips *A*, and how a triangular block *B* should be nailed to it for a rest to push the shoe against.

When you Cover the Blacking-case, omit the inside lining, because it would soil too easily to be practical. Instead of the lining, give the inside surfaces a coat of paint.

What girl would not like to own

A Set of Book-shelves similar to that shown in Fig. 176, to hang upon the wall in her room? The work is easy. A large number of spools are required, but you can soon collect enough by telling your friends and relatives to save all their empty spools for you. A dressmaker's assistance would hasten matters for you.

The shelf-boards should be about ¾ inch thick and 10 inches wide, by whatever length you wish to have them. Buy eight ½-inch screw-eyes and screw one into each corner of each shelf (Fig. 177); and get some

heavy wrapping-twine and cut it into four pieces on which to string the corner spools.

The illustrations show

How the Spools are Strung, with a spool below the screw-eyes of the bottom shelf, and another above those of the top shelf, with a knot tied upon the lower end of the cords, and a loop upon the upper end, to

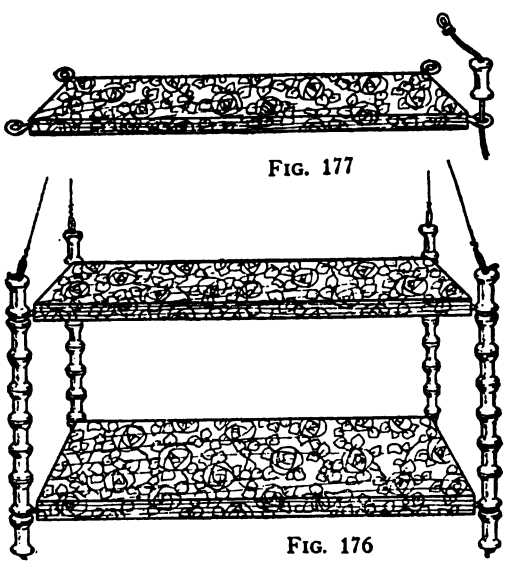


FIG. 177

FIG. 176

FIG. 176. — Spool Book-shelves
FIG. 177. — Detail of Shelves

hold the spools together. The cords must be pulled tight, and the loops must be tied close to the top spools, to make the corners stiff.

Cover the Shelves with Cretonne, and paint the

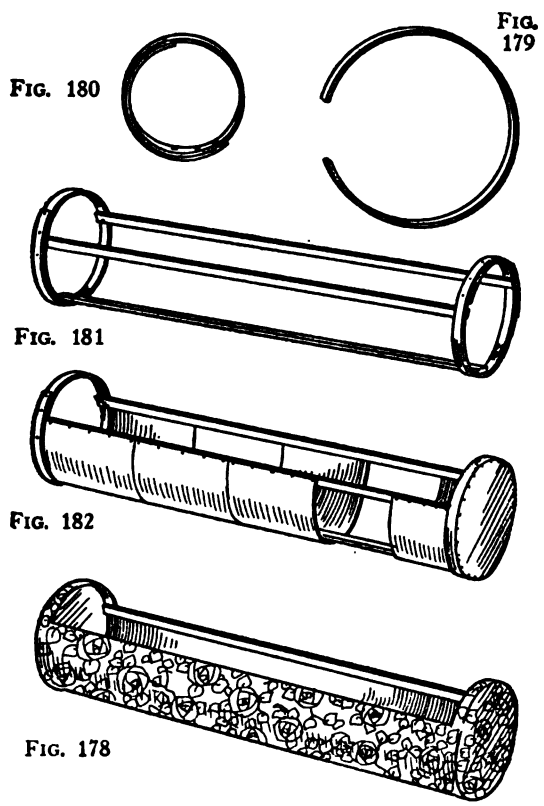


FIG. 178. — A Bolster-roll
FIGS. 179 and 180. — Details of Framework Hoops
FIG. 181. — The Completed Framework
FIG. 182. — How to Enclose the Framework with Cardboard

spools, then hang the shelves from the picture-hooks by means of picture-wire attached to the loops on the corner cords.

A Bolster-roll to encase the pillows is quite the

proper thing for a girl's bed, and a roll like that shown in Fig. 178 is not difficult to construct.

Get two barrel hoops for the ends, and three wooden strips ½ inch thick and 1½ inches wide with which to connect them (Fig. 181). The length of the strips should be the same as the width of the bed the roll is made for. The diameter of the hoops must be reduced to 11 inches, measuring from outside to outside. Remove the hoop fastenings, turn in the ends until the right diameter is obtained, and renail, as shown in Figs. 179 and 180. Connect the hoops with the horizontal strips, spacing these equidistantly, and nailing them with short nails.

The Framework must be Covered, two-thirds of the way around, with cardboard; the other one-third remains open (Fig. 182). Cardboard boxes may be used for this covering material. Bend the pieces around the framework with care so each piece will curve like the pieces adjoining it, and tack to each strip; also, cover the barrel hoop ends with cardboard (Fig. 182). Then reinforce the cardboard with paper, pasting this lengthwise, both inside and out, to conceal the joints between the pieces of cardboard; also tack padding over the edges of the barrel-hoops. Then cover the entire roll, using cretonne for the outside, and a plain cambric for the inside.



CHAPTER VIII

HQME MADE FRAMES FQR SMALL PICTURES

A LARGE number of small, daintily framed pictures will make the walls of a girl's room very attractive, and these can be made at practically no cost.

A Frame made from a Candy-box Cover is shown in Fig. 183. To make this, cut down the rim of the cover to about ¼ inch high, as indicated by dotted lines in Fig. 184, then mark out the front opening so there will be an equal margin of cardboard all around, and cut it with a sharp knife. If you have a plate camera you can cut down a glass plate to fit your frame (*B*, Fig. 186), or if you have a film camera you can use a cleaned-off film; if you have neither, get a piece of glass from a painter, or use the frame without a glass.

Paste the picture to be mounted upon thick cardboard (*C*, Fig. 185) cut to fit the opening, and cut a piece of strawboard of equal size (*D*, Fig. 186) for backing. A piece of cord can be run through one of the corrugations of the strawboard backing and tied in a loop (Fig. 186), for a hanger. Fasten the backing with pins pushed through the edges of the frame.

Figure 187 shows a small round

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FIG. 183

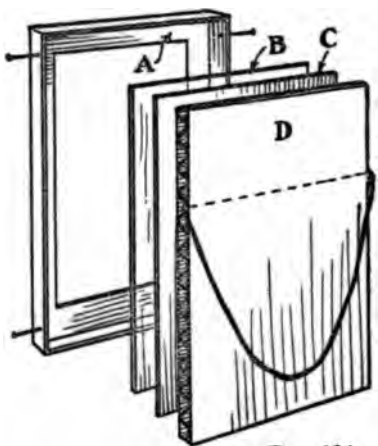


FIG. 186

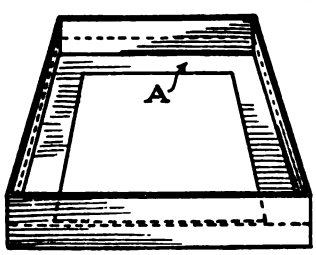


FIG. 184

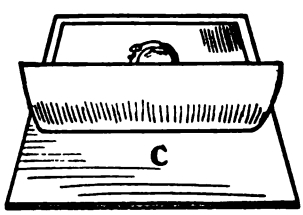


FIG. 185

FIG. 183. — Frame Made from a Candy-box Cover
FIG. 184. — How to Cut Down the Cover
FIG. 185. — Cardboard Backing
FIG. 186. — The Parts Ready for Putting Together

Frame made from a Pill-box. Cut down the rim of the box to about ¼ inch deep, then mark out an opening with a compass, or with the rim of something round, so there will be a margin around the opening ⅛ inch wide (Fig. 188).

Mount the photo upon heavy cardboard. Cut a circular backing out of strawboard (Fig. 189), run a loop of string through it for a hanger, and fasten it in the frame with pins pushed through the sides.

A Double Cardboard Frame like that shown in Fig. 190, decorated by spatterwork as suggested by the



FIG. 187. — Frame made from a Pill-box

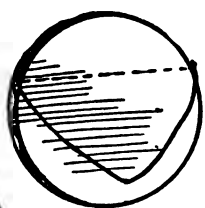


FIG. 189 —Backing

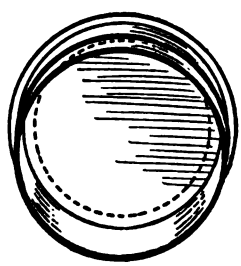


FIG. 188. — Cut Pill-box where Dotted Lines Indicate

illustration, makes an artistic setting for a portrait, photo or sketch. Figure 191 shows a detail of the two pieces (*A* and *B*) required to make this frame. First cut piece *B* with an opening of the right size to accommodate the picture to be framed, and a margin around the opening 1 inch wide; then mark out frame *A* ¼ inch smaller all around, and cut its opening ¼ inch smaller all around so that there will be a lap of ¼ inch over the picture to be framed. Glue *A* to *B*, being

careful to get the projecting margins equal on all sides. Set the picture in the frame (*C*, Fig. 192), and paste a paper backing over it (*D*), then attach cord to fancy-work rings fastened to the back.



FIG. 190. — A Double Cardboard Frame

A Cretonne-covered Frame like that in Fig. 193 will look very pretty in a bedroom having cretonne-covered furniture. It is made of a box board cut to the right proportions so there will be an equal margin around the picture. Cut the cretonne large enough to lap several inches over the back (Fig. 194). Stretch this tightly over the board, and tack down the edges. Tack the picture to be framed to

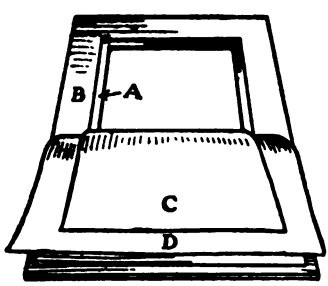


FIG. 192

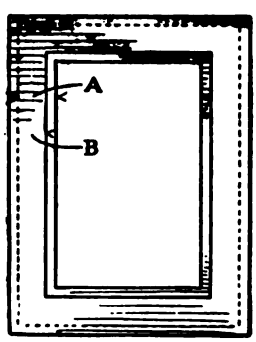


FIG. 191

FIGS. 191 and 192. — Details of Frame

the center of the covered side, then tack gimp or braid around it to conceal the edge.

Attach a cord or wire hanger to fancy-work rings sewed to the cretonne, or to small screw-eyes.

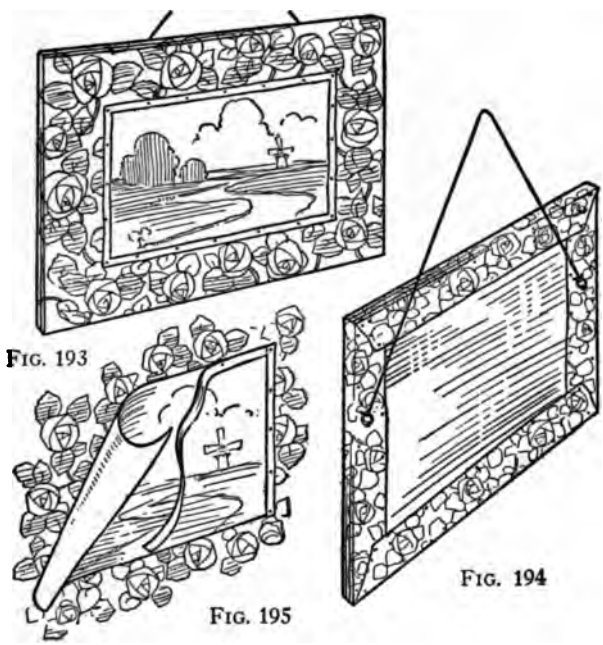
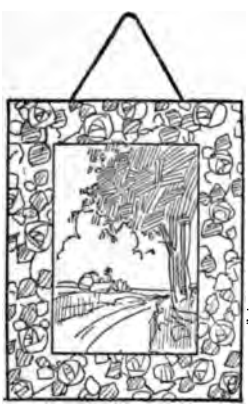


FIG. 193 — A Cretonne-Covered Frame
FIG. 194 — Back of Frame
FIG. 195 — How to Attach Picture

Figure 196 shows

A Unique Glass Frame with a cretonne-covered border. Instead of mounting the cretonne upon a board, as you did in the case of the frame shown in

Fig. 193, mount it upon a piece of glass. Cut a piece of cretonne large enough to cover the glass and to lap 1 inch or so over the edges and on to the opposite side. Then cut the picture opening in the center of the cretonne, and turn in and hem enough of the cut edge



IG. 196 — A Glass Frame

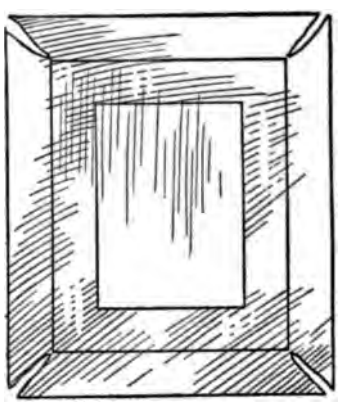
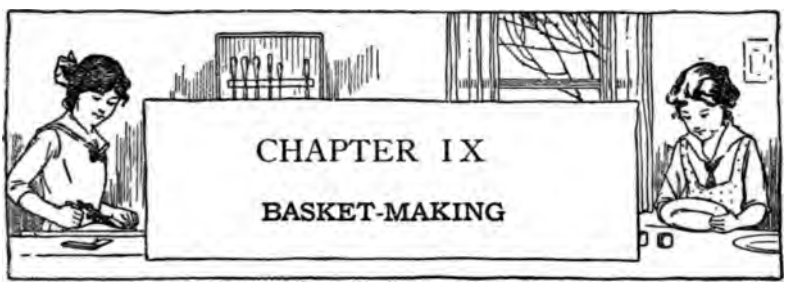


FIG. 197 — Cretonne Covering

to finish it off. Then glue the cloth to the glass (Fig. 197), and when the glue has dried, trim up the edge of the cloth with a sharp knife, if it appears ragged. Set the picture over the frame opening, back it with a piece of cardboard, and glue down the cretonne flaps (Fig. 197) over it. Attach a hanger in the manner shown for the other cretonne-covered frame.

If you think of some

Other Ideas for Home-made Frames be sure to work them out, because the greater variey of frames you have, the more interesting your room will be.



CHAPTER IX

BASKET-MAKING

RAFFIA, reeds, hat-braid, and sweet grasses are the most commonly used materials for basket-making, but prairie grass can also be made into pretty forms, and first of all, in this chapter upon basket-making, I am going to show you how to use this material because you can gather it near your home.

Prairie-grass Baskets are built up of coils, each made of several strands of grasses, and upon the care with which the grasses are assembled and the turns of the coil joined to one another, depends the success of the basket. In gathering the grasses, pull long ones because less splicing will be necessary with them. The material must be damp, so that it will be pliable. Dried grasses will require dampening, but green ones will not.

To Prepare the Grass Rope for the basket coil, lay together enough grasses of equal length to make a thickness a trifle less than the diameter of a pencil. Then grasp these grasses in your left hand, and taking a long strand of grass wrap it around the bunch from stem ends to blade ends, bringing the turns close to one another as shown in Fig. 198. When you reach

the ends of the grass-blades, take another bunch of equal thickness and splice them on to the ends of the first bunch, lapping the ends about an inch (Fig. 199), and binding them together with the covering strand of grass (Fig. 200).

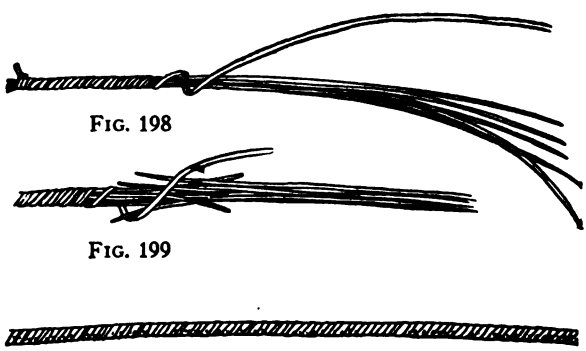


FIG. 198

FIG. 199

FIG. 200

FIGS. 198-200 — Preparing the Grass Rope

An 18-inch rope is long enough

To Begin the Basket shown in Fig. 201. Figure 202 shows how to start the basket bottom. Coil the end of the rope over on to itself, to form a small button (Fig. 202), then with a coarse needle, threaded with the stem of one of the grasses, or a piece of fine raffia, or common thread, sew the turns one to another, using a plain over-and-over stitch. Splice other bunches of grass on to the rope as you need them, and, as you build, sew each turn of the coil to the preceding turn. Draw the stitches tight, to make a firm structure.

Continue building one turn upon another, and pull in or spread according to where and how much you want the sides of the basket to flare. When the rim of the basket has been formed, cut off the end of the coil, and trim back the grass-blades to different lengths so that the coil will bevel off on to the rim.

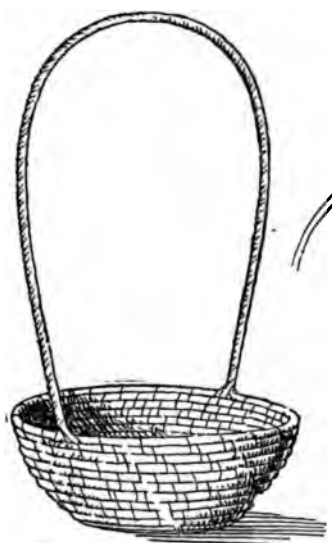


FIG. 201

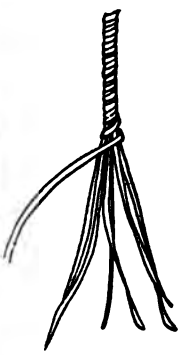


FIG. 203

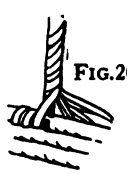


FIG. 204

FIG. 201—Basket Made of Grasses
FIG. 203—The Handle Showing the Wire Core
FIG. 204—How the Handle is Attached to the Basket

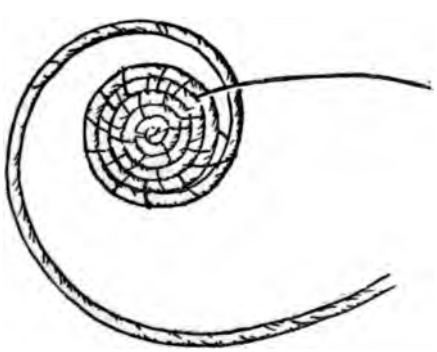


FIG. 202—Start of the Basket Bottom

Making the Handle. Use a piece of wire—electric-bell wire will do—for a center core for the handle, to give it stiffness, and place several strands of grass outside of the wire to add thickness;

then bind all together, and conceal them by wrapping a strand of grass around them (Fig. 203).

To attach the handle, bend the end of the wire around the rim of the basket, as shown in Fig. 204; and fasten the ends of the grasses to the rim, also.

Figure 206, on the page opposite, shows a photograph of the completed basket. Having made this one,

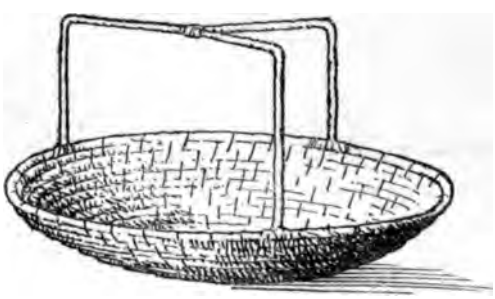


FIG. 205 — Basket with Forked Handle

Other Forms of Baskets will require simply a different manipulation in building up the turns of the grass coil. The introduction of different varieties of grasses, and of dyed grasses, also may be tried, and by using your ingenuity you will discover unlimited possibilities for shapes.

Figure 205 shows

A Basket with a Forked Handle. The only difference between the construction of this basket and the basket just described is in the handle. Make two of the uprights of this out of one piece of wire, bending the



Fig. 208
A Raffia Basket

Fig. 210
A Paper-Rope Basket

Fig. 211.—A Woven Paper-Rope Basket
Fig. 207.—A Raffia Basket

Fig. 209
A Hat-Braid Basket

Fig. 206
A Grass Basket



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wire to form a flat arch across the basket, and make the third upright out of another piece of wire, and join it to the center of the other piece (Fig. 205). Wrap the wires with strands of grass, to conceal them.

The Raffia Basket shown in the photograph of Fig. 207 requires a No. 4 reed for a foundation to wrap the raffia on. All reeds go by numbers, according to size, and any dealer in handicraft working materials will know just what size to give you when you mention No. 4.

Before starting the basket, soak the reed in water to make it pliable. Then, to begin work, shave one end of the reed to a point, wrap this end for a length of 1 inch with raffia, coil the end into a tight button like that described for the grass baskets (Fig. 202), and with a coarse needle threaded with the raffia, pass the raffia around the turns to hold the button in shape. Continue the basket-weaving in this manner: Wrap the reed with the raffia for the distance of an inch, then with the same piece of raffia stitch it to the preceding turn by passing the needle and raffia once around; wrap another inch of the length of the reed with the raffia, and stitch it to the preceding turn in the same way; and so on until you have wrapped and stitched eighteen rows in place. The eighteenth row will bring you to the sides of the basket, and at this point you must hold the reed looser as you wrap and stitch, so as to increase the diameter of the basket.

When the desired height for the basket has been

reached, cut off the reed, whittle the end to make it lie flat, wrap it with raffia, and bind it down to the edge of the basket with raffia.

For the Handles, take two bunches of raffia 7 inches long and twist them together. Place these handles on opposite sides of the basket, and sew their ends to the basket sides with raffia.

The Other Raffia Basket, shown in Fig. 208, is made in the same manner, but its sides do not flare out as much.

The Hat-braid and Reed Basket shown in Fig. 209 is made of No. 6 reeds and two bunches of fancy coarse-woven hat-braid, one of natural color, 1 inch in width, the other green, ½ inch in width, and a piece of thin wood. This is a cover for a flower-pot.

Draw a circle 4 inches in diameter upon the board, using a saucer-rim to draw around, and saw out around the marked line. This is to form the basket bottom. Then cut eighteen reeds, each 7 inches long, for spokes, divide the edge of the circular piece of wood into 18 spaces, and tack the end of a spoke at each division mark; then bend a reed around the spokes at the points of nailing, and tack it in place.

This completes the framework upon which to weave the braid. Using the wide braid, first weave a band of it around the reeds at the base, over the first spoke, under the next, over the next, and so on until the first is again reached; then cut off the braid and tuck in the end under a spoke. For the next row, use the

narrow braid, and weave a band of it in and out around the spokes in the same way that you wove the first band, for the third row use the wide braid again, for the fourth row the narrow braid, and so on until the ends of the spokes are reached. Finish off the work by weaving in two or three reeds to hold down the topmost braid band.

Making Things of Paper Rope. There is no end to the articles that may be made out of paper rope. Baskets of every description, candle and lamp shades, many shapes of vases, porch lamps, table mats, whisk-broom holders, glove and handkerchief boxes, serving-trays, jardinieres, and flower-pots are some of the things which you can make. This work is easy for a girl to do, and it is fascinating.

All that is needed are some

Cardboard Boxes for Foundations, crêpe-paper out of which to make rope strands for covering them, glue, and light wire for handles. You can buy the crêpe-paper at almost any stationery store.

Strands of Paper Rope are sold ready-twisted, but you can twist them just as well yourself, and can have the fun of doing it. Buy a roll of crêpe-paper of any color you want. A chocolate-brown is pretty for the articles described upon the following pages.

Open the roll of crêpe-paper, and cut it across the grain into eight strips of equal width. That will make strips about 2½ inches wide.

To Prepare the Rope Strands, first take a single

strip, pinch one end in a door-jamb, and make a loop in the opposite end through which to slip a pencil. Then twist the pencil from right to left, as indicated in Fig. 212, pulling firmly as you twist, to make the twists even and tight. When the strip has been

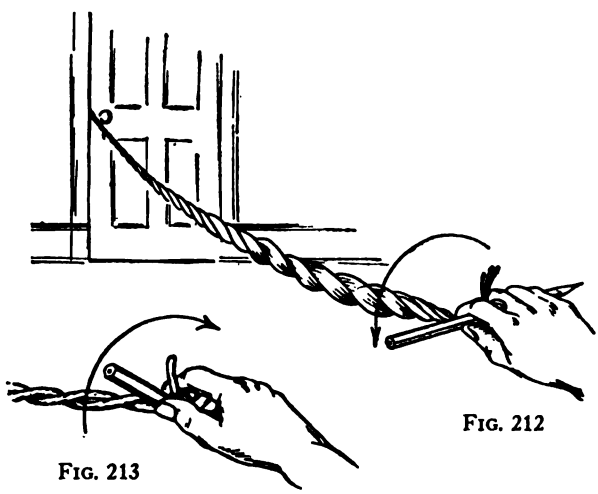


FIG. 212

FIG. 213

FIGS. 212 and 213 — How to Prepare the Strands of Paper Rope

twisted tightly from end to end, remove it from the door, and twist a second strip in like manner. Then, placing an end of each of the two twisted strips together, pinch them in the door-jamb, slip a pencil in loops made in the opposite ends, and twist the two strands together, twisting from left to right, as indicated in Fig. 213. Instead of pinching the strips in the door-jamb, two persons may hold the ends and do the

twisting, which method will twist the rope more quickly.

The Paper-rope Serving-tray shown in Fig. 214 requires the cover to a large-sized cardboard box — one having a narrow rim — for a foundation, with a wire handle attached to each end.

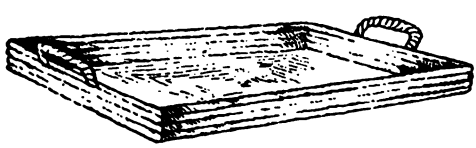


FIG. 214—A Serving Tray

Putting on the Paper-rope Covering. Lap and paste a strip of crêpe-paper over the edge of the box to conceal it, and then coat the outside surface of the rim with glue, and, starting at the bottom of the surface, wrap a strand of paper rope around and around the rim, pushing down each row of the rope close against the preceding row (Fig. 215). When the top of the rim has been reached, coat the inside surface of the rim with glue, run the rope over the rim, and wind it around the inside; then glue crêpe-paper to the inside of the bottom, coat it with glue, and wind the strand of rope around and around, working in from the outside rim until the center has been reached. Cover the outside of the bottom in the same way. Nothing could be simpler than this work of gluing the rope strands in place.

The Inside of the Tray Bottom may be covered with cretonne instead of paper-rope, if you wish, in which case the cloth must be covered with a piece of glass

cut to the exact inside measurement of the tray. If cretonne and glass are used, they must be put in place before the rim is covered, so the rope will hold down the glass.

The Wire Handles should be bent to the shape shown in Fig. 216. To attach them, pierce holes through the box ends for the handle ends to stick through, bend over the handle ends, and twist them around the handle as shown. Then wrap the handles, first with crêpe-paper to conceal the wire, then with the paper-rope.

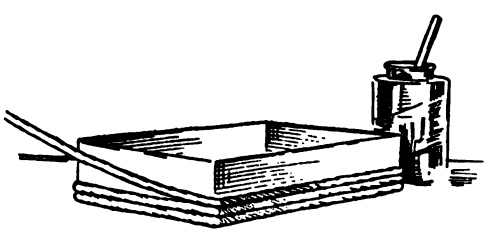


FIG. 215 — How to Glue the Paper Rope Strands to a Cardboard Box Foundation.

The Paper-rope Jewel-box in Fig. 217 is made from a candy box, lined inside with silk, and wound outside with paper-rope in the same manner as was directed for covering the tray. Make a cover out of cardboard cut to the right size to make a projection of ¼ inch over the sides of the box, and hinge it to the box with strips of tape. Then line the under side of this cover with silk, and wind the upper side with the paper-rope.



FIG. 216 — How to Attach the Wire Handles

Select a small square cardboard box for

The Paper-rope Basket shown in Fig. 218, and after covering it both inside and out in the manner described for the other articles, take two pieces of wire for the

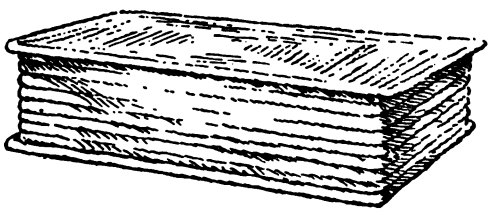


FIG. 217 — A Jewel Box.

handle, cover each with crêpe-paper, and then twist the covered wires together from end to end. Fasten the handle ends to opposite corners of the box, inside, either with fine wire or heavy linen thread.

Figure 210 shows a photograph of

The Same Basket with a Different Handle. Make the handle out of two pieces of wire, but instead of twisting the wires together, join them with short pieces of rope crossed back and forth from one to the other.

A Pretty Hanging-basket for the porch may be made by covering a tall drinking glass with paper-rope, then twisting together two pieces of wire covered with crêpe-paper, to form a long handle, and attaching this handle to the paper-rope.

A Woven Paper-rope Basket like that shown in the photograph of Fig. 211 is made without a card foundation. The framework requires twelve wires 30 inches

long, and the covering is done with crêpe-paper strips 1 inch wide, cut across the grain of the paper. Each wire must be wound with the paper, and a quick way to put it on is to fold the end of a strip over the end of a wire, then, holding the wire in the right hand, and holding the paper strip loosely, in the left hand, twirl the wire so as to make the strip wind upon it. Tear off the strip when the end of the wire has been reached and paste the paper to keep it from untwisting.

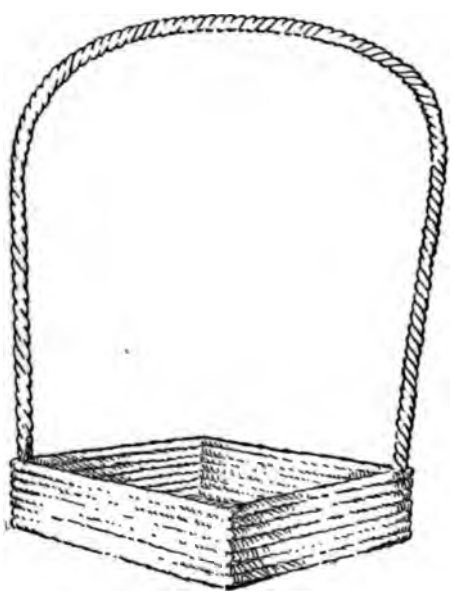


FIG. 218 — A Paper Rope Basket (Fig. 210, shows the same basket with a Different Handle)

Separate the twelve wires into two sets of six each, cross them at their centers as shown in Fig. 219, and tie them temporarily with strong thread, to keep them in position. Then, bend out the wires so that they will be spaced equidistantly (Fig. 220), and begin the weaving by running a strand of the paper-rope, alternately, over two wires, and under two wires, as shown in Fig. 220, until the sixth row has been woven; then

cut off one of the wires, close to the last row, because from that point on we use a different method of weaving — that of weaving alternately over one, and under one wire, — and an uneven number of wires are necessary

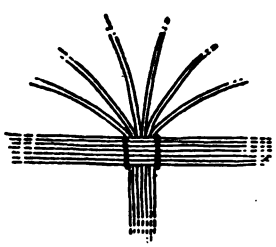


FIG. 219 — Start of Bottom for a Woven Paper-Rope Basket

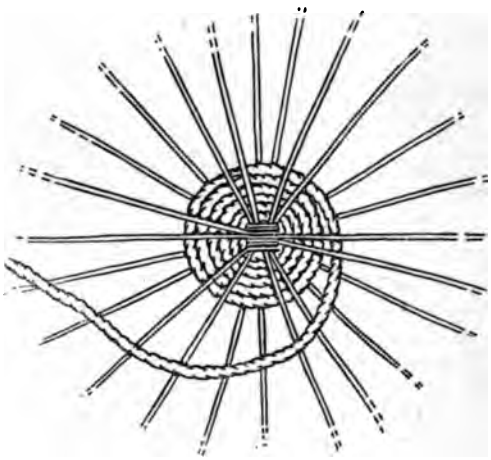
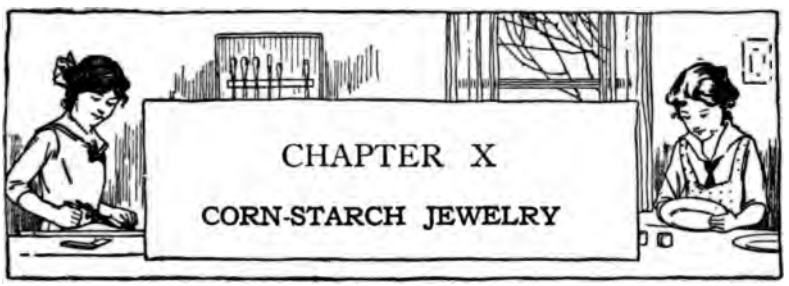


FIG. 220 — How to Weave the Bottom of a Woven Paper-Rope Basket

to make the weaving come out right. After removing the end of the one wire, spread the others to make the spaces between the remaining wires equal. Then continue the weaving, running the rope in and out around the wires, and pushing each turn of rope close up against the preceding turn so that no gaps will appear. When the flat bottom of the basket is as large as you want to have it, bend up the ends of the wires, and then continue the weaving, bending the wires in and out to

form whatever shape of basket you wish. When the desired height has been attained, cut off the wires, leaving enough length to trim down about ⅛ inch and conceal in the edge around the top.

Shellac the Rope Baskets with two coats of shellac, to harden the paper-rope and give it a glossy surface.



CHAPTER X

CORN-STARCH JEWELRY

NECKLACES, lavallieres, pendants, bracelets, watch-fobs, and all manner of pieces of jewelry, large and small, and of attractive design, may be made by the simple process which I am going to tell you about.

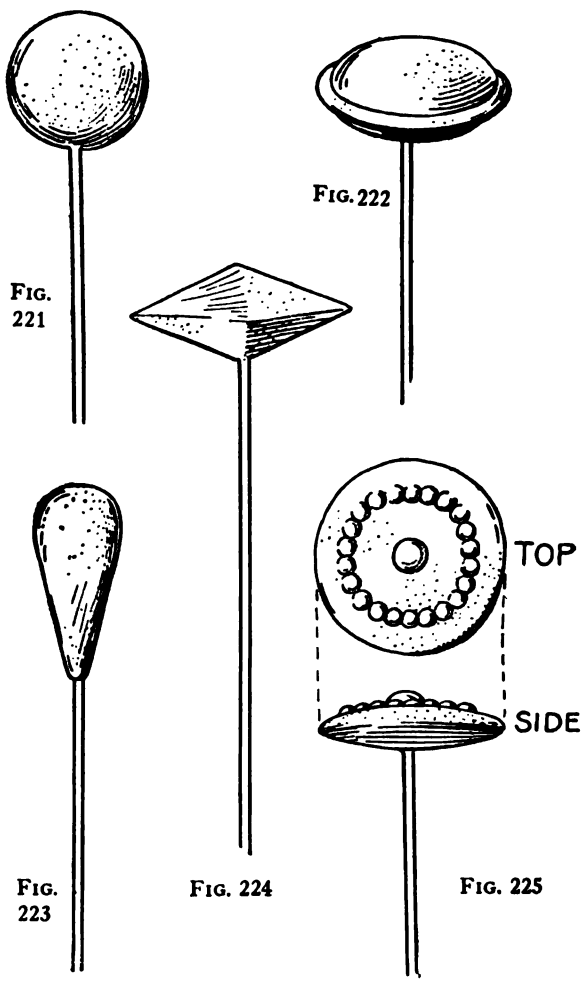
The Materials needed are inexpensive — corn-starch, common table-salt, cold water, fruit coloring, or water-colors, small crystal beads and pearl beads.

The corn-starch, salt and water must be made into a mixture for modeling, in the proportion of 1 tablespoonful of corn-starch, to 2 tablespoonfuls of salt, to 1 tablespoonful of cold water. If you wish

To Color the Material, first add the fruit coloring or water-colors to the water. Then

Mix the Corn-starch with the Water, and when this has been done heat the salt in a small pan, and when "piping hot" pour it in with the corn-starch and knead with your fingers until thoroughly mixed. With the mixture thus prepared, you are ready to make your first piece of jewelry.

Fancy Hatpins are the simplest pieces to start with, and Figs. 221 to 225 show several pins with prettily designed heads that are easy to make. You need a



FIGS. 221 to 225 — Fancy Hatpins

common hatpin for the foundation, and you must build the fancy head upon this, molding the corn-starch

mixture about the common head into the form you wish to have it. A knife will help in trimming up surfaces, cutting sharp corners, and making straight edges. The beads on the top of the hatpin head shown in Fig. 225 are pearl beads, and are pressed into the molded head before the mixture hardens.

The large beads of

The Bracelet shown in Fig. 226 are made of the corn-starch mixture, the small ones between are crystal beads, and a string or cord is used to string them on. Roll the corn-starch beads between the palms of your hands until they are perfectly round, then pierce holes through them before they harden to prepare them for stringing.

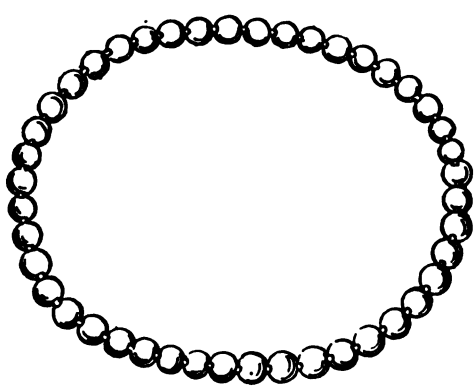


FIG. 226 — A Bracelet

When you have strung as many beads as are necessary to make the size of bracelet you want, join the ends of the cord with a strong, neat knot.

The Watch-fob (Fig. 227) has a pendant made of the corn-starch mixture. The irregular-shaped piece in the center of the face may be a fancy button or a piece of colored glass; or if you own a stationery seal

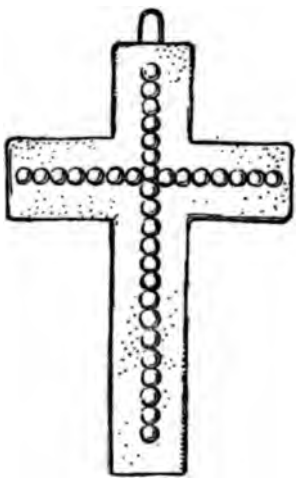


FIG. 228 — A Pendant

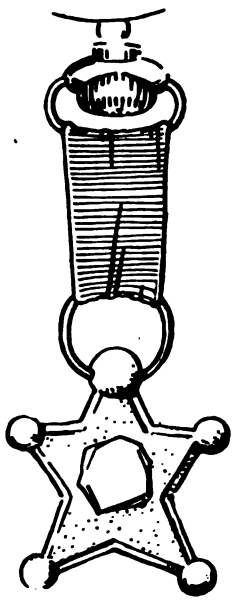


FIG. 227 A Watch-fob

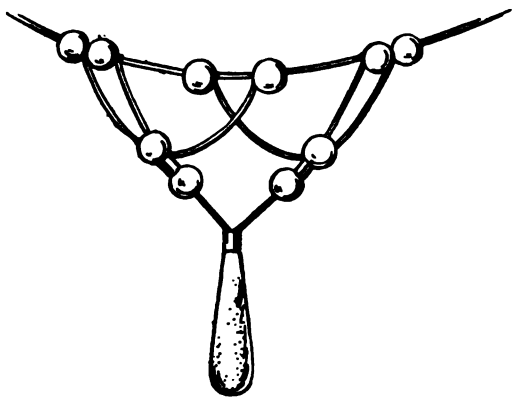
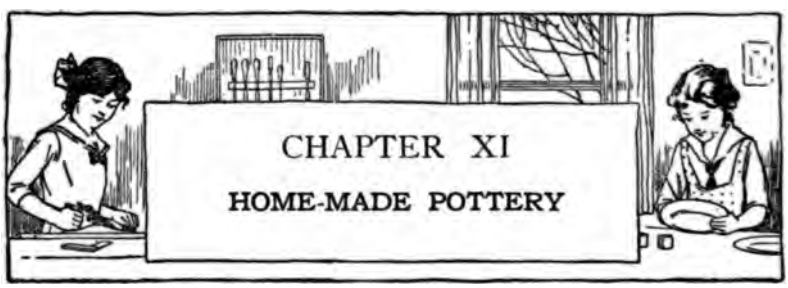


FIG. 229 — A Lavalliere

you can stamp your monogram in that place. The ring at the top of the pendant is a fancy-work ring, and it is securely fastened with a small hairpin looped over it and extended down through the center of the pendant. A piece of silk ribbon, joined to the fancy-work ring and to the watch ring, completes the fob.

The Pendant shown in Fig. 228 has a small hairpin extending from the top down through the center, with just enough of the loop left exposed at the top to form a ring. Small pearl beads are pressed into one face, in rows as shown, to complete the cross.

The Lavalliere in Fig. 229 has a pendant made of the corn-starch material, but the beads are pearl beads. If you can get some of the gold cord that comes around candy boxes, it will be just the thing to use to string the beads upon; otherwise, use a silk cord. A hairpin must be embedded in the pendant to attach the cord to. Arrange the beads upon the cord in the manner shown in the illustration.



CHAPTER XI

HOME-MADE POTTERY

WHEN I have shown you how easily you can model little bowls, candlesticks, and vases, you will want to try your hand at this new method of pottery-making right away.

Modeling Clay can be purchased wherever artists' materials are sold, but if there is clay soil where you live, free from other kinds of soil, it will do very well. Break the clay into small pieces, put the pieces into a deep pan or earthen crock, cover with water, and allow to stand until soft enough to knead like putty, but not wet enough to be tacky.

Clay must always be kneaded before you model with it, because it contains air which if left in it would form air-bubbles in your pottery and spoil it. Work out this air by kneading in the same way that you knead bread. Also guard against making the clay too moist, because that causes pottery to sag, and sagging of course spoils the shape.

You must have

A Board to Work Upon, a pie-tin on which to build, a knife, a short stick, flat on one end and pointed on the other, and a ruler.

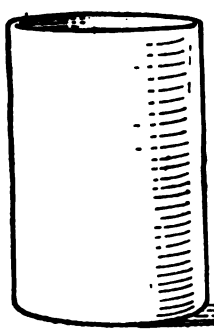


FIG. 230

FIG. 233

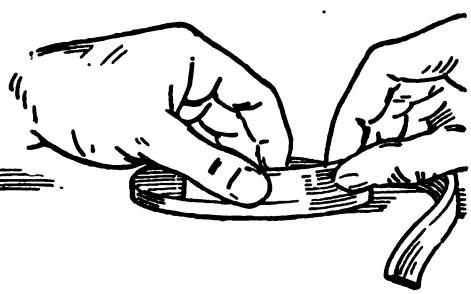


FIG. 232

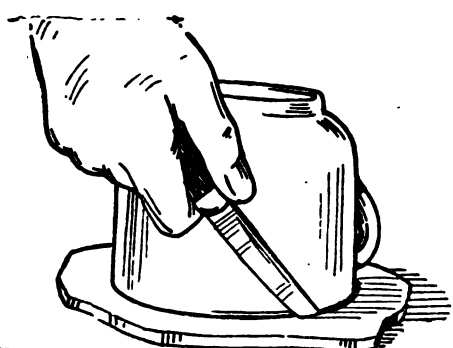


FIG. 231



FIG. 230 — A Jar (Fig. 235 shows the same jar ornamented)
FIG. 231 — Pat out the Clay and Smooth it off, like this
FIG. 232 — How to Cut a Circular Base.
FIG. 233 — How to Build Up the Sides of the Jar

To begin with

The Jar in Fig. 230, put a handful of clay on the board, pat it out with your hand until it is ¼ inch thick, and smooth off the surface (Fig. 231). Then take a coffee cup, invert it upon the base, and with

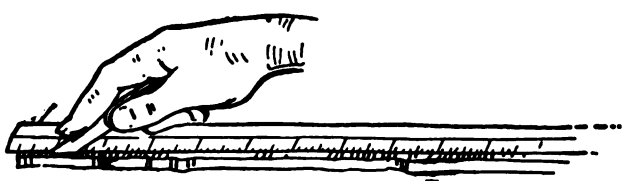


FIG. 234 — How to Cut Strips of Clay for Building Up the Sides of the Jar.

your knife trim away the clay outside of the rim (Fig. 232).

To build up the walls, put a handful of clay on the work-board, and with a knife smooth it out into a long strip ¼ inch thick. Then with knife and ruler trim off one edge of the piece, and cut a number of strips ¾ inch wide (Fig. 234). Take one strip, stand it on top of the base, and rub its edge into the base (Fig. 233) on both sides of the strip; then take another strip and add it to the top of the first one, and continue building in this way, placing one strip upon another, joining each to the one beneath it, and smoothing over the joints as you build, until the walls are as high as you want them to be. Keep your left hand inside of the jar while you build, for support. Fill uneven places with bits of clay, and smooth out rough places



FIG. 237
A BOWL

FIG. 235
A JAR

FIG. 239
A TABLE LAMP

FIG. 238
A JUG

FIG. 236
A CANDLE-STICK





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with your fingers, having moistened your fingers with water.

Figure 235 shows this same shape of jar ornamented. I will tell you how to ornament pottery, on page 131.

The Candle-stick shown in Fig. 240 requires a round base ½ inch thick and 4 inches in diameter (Figs. 243

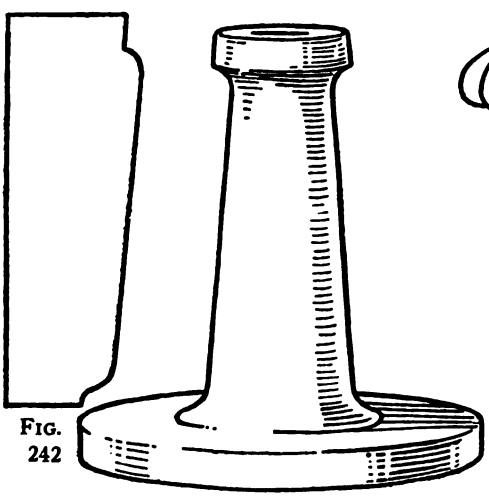


FIG. 242

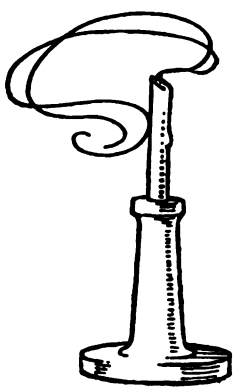


FIG. 240

FIG. 241

FIG. 240 — An Easily-Made Candle-Stick
FIG. 241 — A Large Detail of the Candle-Stick
FIG. 242 — A Cardboard "Templet" with which to Shape the Sides of the Candle-Stick

and 244). After preparing this, put a lump of clay in the center, work it into the base, place another lump on top and work it into the first piece (Fig. 245), and continue in this way until the candle-stick has been built as high as you want it. Then force a candle

into the moist clay, twisting it around until it has made a deep-enough socket for itself.

A Cardboard "Templet" (Fig. 242), with one edge trimmed to the proper shape, makes it easy to get the walls symmetrical and the projecting cap on the top equal all around. Run the edge of the templet around the walls as you work, and it will show you exactly where and how much to fill out, trim and straighten.

Another method of modeling a candle-stick is that used in making

The Candle-stick with a Handle, shown in Fig. 236. Make a base just the same as for the other candle-stick, then cut strips of clay and build up the wall as you built that of the jar (Fig. 233), leaving a center hole just large enough to admit a candle. When the desired height for the wall has been reached, cut a strip of clay ½ inch wide and ½ inch thick, and lay it around the top of the wall with a projection of ¼ inch over the wall. Smooth this piece on top, inside and outside with your modeling-stick and fingers. For

The Handle prepare a strip 1 inch wide and ⅜ inch thick, and join one end to the top band and the other end to the base. Use a small lump of clay for filling in around where you join the piece, and smooth off the piece on all sides.

When the candle-stick is finished, run a round stick of the size of the candle down into the hole, and let this stand until the clay is dry, to keep the candle-stick straight. Figure 246 shows

A Bowl, and Fig. 247 shows the shape of the templet required for getting the sides symmetrical. Figure 237, 248 and 249 show

Three Other Shapes of Bowls of attractive design that are easy to make, and

The Jug in Fig. 238, and

The Two Vases in Figs. 250 and 251 will also be simple pieces for you to try, after you have learned the easy method of pottery making which I have given you.

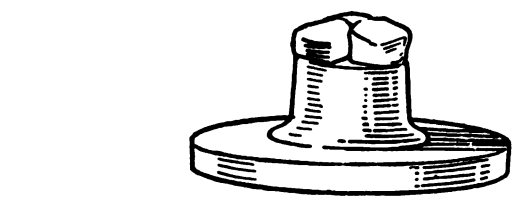


FIG. 245

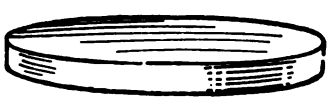


FIG. 243

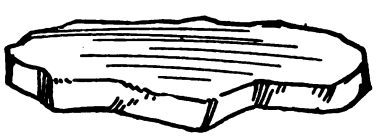


FIG. 244

FIGS. 243 to 245 — Starting the Candle-Stick

After you have made a vase, you might convert it into

A Table Lamp. That is the way the lamp shown in Fig. 239 was made. This shade was constructed of copper strips riveted together, but you can use almost any other kind of a home-made or boughten shade. Get a lamp-socket, cord, and plug from a dealer in electrical supplies.

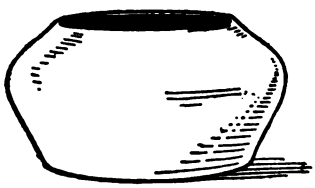


FIG. 246



FIG. 247



FIG. 248



FIG. 249

FIGS. 246 to 249 — Three Shapes for Bowls



FIG. 251



FIG. 250

FIGS. 250 and 251 — Two Shapes for Vases

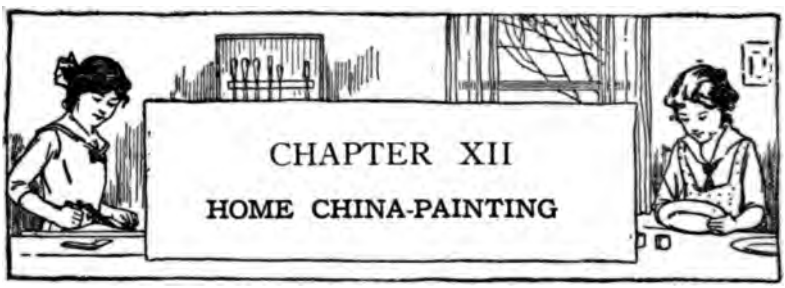
Drill a hole through the side of the vase, near the base, for the cord to run through, and after you have run the cord through it, and up through the open top, fill the vase with clay or plaster-of-Paris, attach the lamp-socket to the cord, and pull down on the cord until the socket is embedded in the plaster and clay. The plaster or clay filling will not only hold the cord and socket securely, but will weight the vase so that the shade will not overbalance and upset it.

Pottery may be Ornamented by scratching a design upon it with the end of your modeling-stick. Figure 235 shows a simple straight-line design that is effective and easy to put on. Use a ruler to guide the stick in drawing the lines. The ornamentation on the vase shown in Fig. 239 was modeled upon the surface, in relief.

Glazing and Firing. Pottery that you buy is glazed, then fired in a pottery kiln (not a china kiln), but you probably will not be near a place where you can have this done, so will have to do without it. But firing is not necessary. The clay will dry hard enough, naturally, to keep its shape, and the only thing you must provide for is

Waterproofing Pottery that is to hold water. This can be done with bath-tub enamel. Mix the enamel with pigments, for outside surfaces, and use your ingenuity to get pretty color effects.

Keep Unfinished Pottery Covered with a wet cloth to prevent the clay from hardening while you are not working upon it.



CHAPTER XII

HOME CHINA-PAINTING

PERHAPS you have had a longing to do some of the beautiful china decorating to be seen in the shop windows, but never realized that such an accomplishment for you was possible. When you have carefully studied the suggestions which I have prepared for you in this chapter, however, I am certain you will not be afraid to try your hand at the work, for you will see that talent is not so much required as a steady hand, a true eye, and a little knowledge of color, all of which can be acquired by practice and patience.

Conventional China Decoration has almost entirely superseded the naturalistic painting so much in favor a few years ago, and this is the kind you will want to do. Richer, more restful tones are possible with it than with naturalistic painting, and the work is easier and much more interesting for the beginner.

First of all, we must get together

The Equipment Necessary for Painting. Figure 252 shows illustrations of some of the articles. Make a copy of the following lists, and take them to the nearest art store:

MINERAL PAINTS

(SELECT A. LACROIX'S CHINA COLORS IN TUBES)

Dark Blue	Brown-4-or-17	Yellow-for-mixing
Deep-Red Brown	Apple-Green	Deep Purple
Capucine Red	Yellow Ochre	Mauve
Carmine No. 2	Silver-Yellow	

(GERMAN)

Brunswick Black

GOLD

1 box of Roman Gold

CAMEL'S HAIR BRUSHES

1 Square Shader No. 8
1 Square Shader No. 3
1 Pointed Brush No. 3
1 Pointed Brush No. 1
} (*D*, Fig. 252.)

1 Small Pointed Brush No. 1
1 Small Pointed Brush No. 3
1 Square Shader No. 8
} Use these three brushes for applying gold, for nothing else.

MISCELLANEOUS EQUIPMENT

1 8-inch by 8-inch glazed white tile to mix paints on (*A*, Fig. 252)
1 Small Palette-Knife for mixing colors (*B*)
2 Small Cups (such as cold cream comes in) to hold turpentine and painting medium (*C*)
1 Bottle of Turpentine
1 Bottle of Painting Medium
1 Small Bottle of Oil of Lavender Flowers

1 Stick of India Ink
1 Small Drawing-Pen (crow-quill) (*F*)
1 China Marking-Pencil (*E*)
1 Sheet of Tracing Paper
1 Sheet of Graphite Transfer-Paper
Gummed Paper for Attaching Tracing to China
1 Brass Gauge (*I*)
1 Plate Divider
1 Glass Burnishing-Brush
1 Sheet of Emery-Paper No. 00
Wooden Toothpicks with cotton twisted around tips (*G*)
Cotton-Batting out of which to make Pads like *H*, Fig. 252
Pieces of old China Silk or old white silk handkerchief
Pieces of clean Rags.

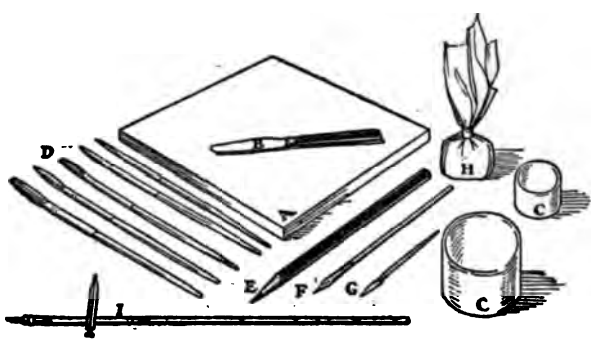


FIG. 252. — Some of the Equipment Required for China Painting
(In the above Lists these articles are marked correspondingly.)

At the store where you purchase the above materials, inquire where you can have your

China Firing done. Two firings are necessary for all work, the first after the outlining and gold have been put on, the second after all decoration has been



FIG. 255
A BOWL



FIG. 253
A BUD HOLDER

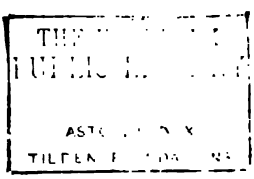
FIG. 254
A VASE



FIG. 256
A BOWL






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completed. Nothing short of a regulation china-kiln will do satisfactory firing.

The simplest way of presenting

A Beginner's Course in China-Painting is to take up the decoration of several simple pieces, and go through with the work from putting the design on to the bare china to applying the finishing brush strokes. This is the method I have followed in presenting, first of all, instruction for decorating

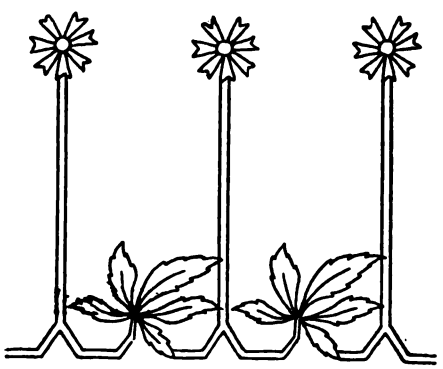


FIG. 259.— Design for Bud-Holder shown in Fig. 253.
(This design has been printed full size. Trace it and transfer it.)

The Bud-holder shown in Fig. 253. The design on this is a conventionalized corn-flower. In order to simplify the work of

Copying the Design, I have presented a portion of it laid out to the exact size needed, in Fig. 259, and all that you will have to do is trace it upon a piece of tracing-paper, and transfer it off upon each space on the bud-holder. If your piece is of the same shape as that illustrated, the design will repeat five times in the distance around it.

To Divide the Circumference of a piece of china no

matter whether it be a plate or vase, the plate-divider, mentioned among the equipment, should be used. To divide the bud-holder's circumference into five equal spaces, for example all that you have to do is to place the holder on the center of the plate-divider sheet, find the points upon this sheet, and mark them off upon the sides of the holder with your marking pencil. By studying the divisions and figures on this ingeniously contrived plate-divider, you will easily learn how to apply them.

With the bud-holder divided, take tracing-paper, place it over the design shown in Fig. 259, and

Make a Careful Tracing of every part of the design; then

Transfer the Design. Place the tracing upon the china, with the center of the design exactly on one of the division marks, hold it in position while you slip a small piece of the graphite impression paper under the tracing, and stick the tracing to the china with pieces of gummed paper. Then go over the tracing with a pointed, hard pencil, being careful to keep the pencil on the lines, and not to miss any part.

When the design has been gone over, remove the tracing and the graphite paper, and you will find

The Outline Correctly Transferred to the china. As this outline will rub off easily, it is best to go over it with India ink. Dip the stick of ink in water and rub it down on a saucer. Then with the No. 1 brush and the ink, go over every line of your transferred design.

In a similar manner,

Trace the Design upon the Other Divisions on the bud-holder, and when it is drawn out with India ink, and the ink has dried,

Rub the Lines Gently with Emery-paper until they appear gray instead of black.

Outlining is the next step. Squeeze a little Brunswick Black on the palette, then a tiny bit of Deep-Red Brown to make the color warmer. Mix the two by rubbing over and over on the palette with the palette-knife, and add a drop or two of Lavender Oil to make the mixture thin enough to use with the pen.

Dip the pen into the mixed paint, then, holding the china with your left hand, go over every line of the design. Be very careful to get your lines uniform, strong, and firm, because on the general appearance of the outlining depends whether or not your finished piece will be a success.

When the outlining has dried, the china will be

Ready for the First Firing. If you do not know of somebody who has a china-kiln, and who does firing, any art store can direct you.

After the firing has been done, the piece is ready for

Mixing the Colors. We will make the flowers of the design Blue, and the center stamens Brown-4-or-17, and we will make the leaves at the bottom of the design Apple-Green.

Mix two-thirds Dark Blue with one-third Apple-Green, using a very little Lavender Oil to mix them

with. When mixed, take up the paint with the palette knife, and place it on one side of the palette. Then take a little Brown-4-or-17, mix it with a little Lavender Oil, and put it aside on the palette, also. For the leaves, mix Apple-Green with a tiny touch of Brunswick Black — just enough to tone up the bright green, then put this aside.

The Painting is simple. Pour a little of the painting medium into a small cup. Dip the No. 3 pointed brush into the medium, and try out the brush on the palette, because too much oil will spoil the paint and make it blister in firing; then dip it into the mixed blue and lay in the seven little petals, being careful to paint close up to the outlines, and to lay the paint on smoothly, evenly, and thinly.

Next, paint the five-pointed leaves at the foot of the piece, using the Apple-Green mixture, and working carefully as before. Paint as close up to the outlines as you possibly can.

After the leaves, the stems are painted, and these are laid in with the same green, from the flower down and around the base to the leaves. Put the center stamens in the flowers with the brown paint, in the form of small dots.

Instead of using gold on this bud-holder, you may paint a line around it on the top edge, with the blue. Put this blue on heavier on the line than you put it on the flowers. This will complete the piece, and it will be ready for the second and final firing.

The Plate shown in Fig. 257 measures 7½ inches from side to side. Yours should be of similar diameter. Lay your plate face down upon the plate divider, and mark it off into five equal divisions, which will give the proper spacing for the design shown. "Ten" on the divider will be found easy to use, after you have worked with it awhile.

Using the Brass Gauge (*I*, Fig. 252), make a line around the plate ¼ inch from the edge, then another

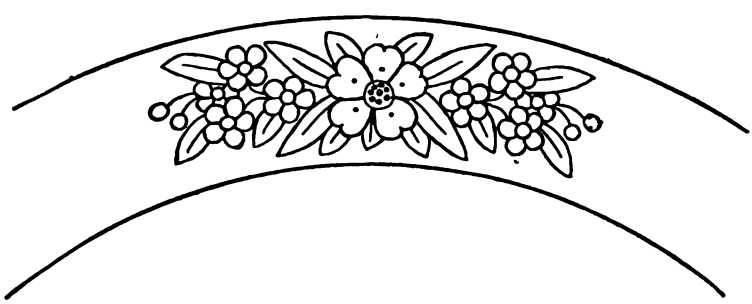


FIG. 260. — Design for Plate Shown in Fig. 257
(This design has been printed full size. Trace it and transfer it five times.)

line 1 inch from the edge. This will allow for a band ¾ inch wide.

Lay out the Design, tracing off on tracing-paper the full-size pattern shown in Fig. 260, and transferring it and outlining it in the way previously described.

Putting on Gold. With the design outlined, you may put a line of gold around the edge of the plate, also on each line of the band. Take out of its box the glass slab that contains the gold, and with the palette-

knife spread out a little of the gold upon the glass, adding a very little bit of Lavender Oil. Dip the No. 1 brush in the gold, and carefully go over the line around the top of the band, then the line around the bottom of the band. You may also put a gold line around the edge of the plate. Hold the plate in the left hand, and put on the gold with the third finger of your right hand. Dip the tip of the finger in the gold, then run it around the edge, rubbing on the gold as evenly as possible. This method for gilding edges of work is much easier than using a brush. Clean off any spots that may have been daubed on the front and back surfaces, then the plate will be ready for the first firing. Gold must be put on twice and fired twice, to wear well.

Burnish the Gold with the glass brush, before painting. It is well to work carefully with this brush, because particles of glass break off during the burnishing, and are likely to stick into the hands. To save discomfort, wear gloves. Spread a paper under the piece of china to catch the particles, and fold this up carefully and destroy, when you are through burnishing. Wipe the china to make sure that the surface is free from glass.

Tint the Band that you have outlined with gold. Take some Silver-Yellow on your palette, and mix it with Lavender Oil, as described for preparing the other colors. Then with the No. 8 Square Shader Brush, dip into the painting medium, and rub the brush on the palette to work the oil well up into the

brush roots. Use little of the medium, because there is danger of misfortune if the paint becomes too oily. With the medium on the brush, dip into the Silver-Yellow on your palette; then paint the band from one line to the other, putting on the color as evenly as you can.

Pat the Tint quickly and gently, with the Pad or *Pounce* (*H*, Fig. 252). This pad is made of a small wad of cotton covered with a piece of china silk; it must be soft, not a hard tight wad, and the silk must be free from wrinkles.

Wiping. When the tint has been patted evenly, take a toothpick with a piece of cotton twisted about its point (G, Fig. 252), and with the point of this wipe out every bit of color that has been run over on to the flowers and beyond the top and bottom lines; also clean up all ragged edges of the gold lines that you may see.

To Paint the Flowers and Leaves, mix the paints as described before, using a bit of Lavender Oil. For the flower in the middle of each group, use Yellow-for-Mixing, and for the round center of the flower use a bit of Yellow Ochre. The two small lower flowers on each side are red, so you must use the Deep-Red Brown on your palette; put this on thinly, then add a touch of Silver-Yellow to the centers. The upper flower on each side should be painted in with Yellow-for-Mixing and a touch of Yellow Ochre for the centers. Use the Yellow-for-Mixing for the buds, and Apple-Green for the leaves, mixed as directed before.

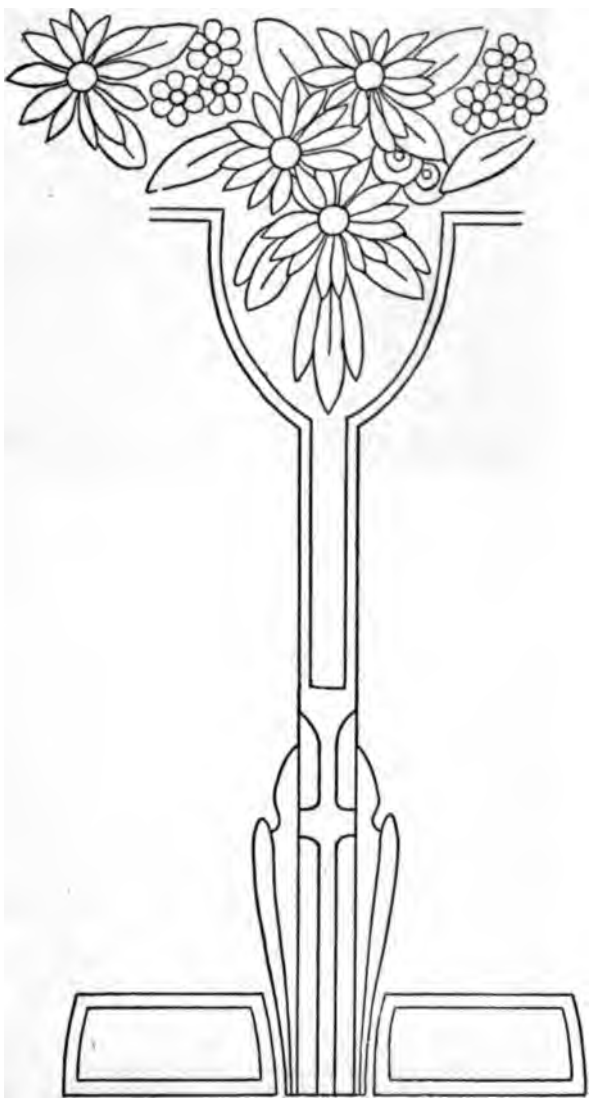


FIG. 261. — Design for Vase Shown in Fig. 254
(This design has been printed full size. Trace it and transfer it three times.)

After the painting has been completed, apply the second coat of gold, and the plate will be ready for the second firing.

The Vase illustrated in Fig. 254 is 7 inches high, and the design repeats three times in the circumference. Figure 261 shows the design printed full-size so you can trace it off on tracing-paper and transfer it in the same manner as was described for the other pieces of china. It will only be necessary for me to specify

The Colors to Use. All of the lines are in gold; also the top edge. The daisies are painted a delicate blue, with a thin wash of Dark Blue, the small flowers in the upper part of the band are painted with Capucine Red, and the two little flowers that peep from under the leaf are in Deep-Red Brown. The leaves, including the tall upright ones at the bottom of the design, are in Apple-Green. The oblong spaces at the bottom of the vase are painted in Yellow-for-Mixing, inside of the lines of gold.

Don't forget what I told you about applying the gold—the first application to be put on after the outlining has been done, before the first firing, the second coat the last thing before the final firing.

The Smaller Bowl of the two shown in the photographs (Fig. 255), for which a full-size section of the design for the inside is shown in Fig. 262, and for the outside in Fig. 263, has a wide line of gold put on around its top. The flowers inside of the bowl are in Capucine Red with Apple-Green leaves. On the

outside of the bowl, the tint at the top is a very even wash of Apple-Green, afterwards patted as you patted



FIG. 262. — Design for Inside of Bowl Shown in Fig. 255
(This design has been printed full size. Trace it and transfer it twelve times.)

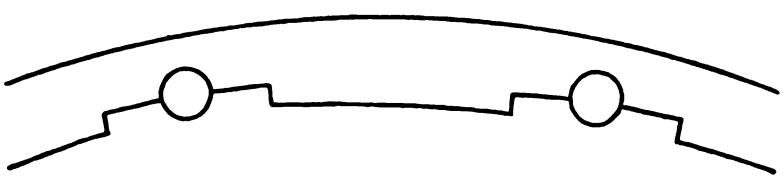


FIG. 263. — Design for Outside of Bowl Shown in Fig. 255
(This design has been printed full size. Trace it and transfer it twelve times.)



FIG. 264. — Design for Bowl Shown in Fig. 256
(This design has been printed full size. Trace it and transfer it three times.)

the plate. The little round figures are made in gold, and the outline on the outside of the design is in gold.



FIG. 257.—A PLATE

FIG. 258.—A CUP AND SAUCER



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The Bowl with Feet (Fig. 256) is a piece of Seizi ware, a Chinese manufacture, with a delicate green tone beneath its glaze. This piece is decorated with little red berries, and leaves of a darker green than the

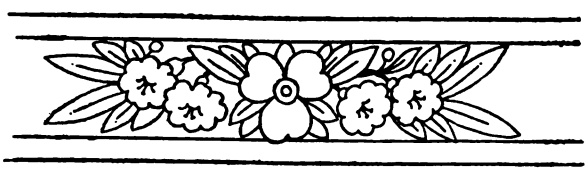


FIG. 265. — Design for Cup Shown in Fig. 258
(This design has been printed full size. Trace it and transfer it three times.)

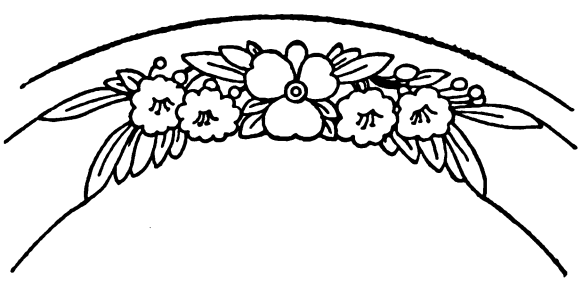


FIG. 266. — Design for Saucer Shown in Fig. 258
(This design has been printed full size. Trace it, and transfer it three times.)

tone of the china. Figure 264 shows a full-size pattern of the design used. The berries are laid in with Capucine Red, the under ones a little heavier than the upper ones. A band of gold ⅛ inch deep has been put around the top.

The Cup and Saucer (Fig. 258) are both divided into three divisions. Figure 265 shows a section of the design for the cup, and Fig. 266 shows a section of the same design adapted to the curve of the saucer, both drawn full-size like all of the other design-sections, so all that you will have to do will be to trace them off and transfer them to the china. Gauge a line around both the cup and the saucer ⅛ inch from the edge, and another line ½ inch below that again, to form the band for the design.

After transferring the design upon both cup and saucer, go over the bands with gold, gild the edge of both pieces, and wash gold over the handle. Then send the pieces to the kiln for the first firing.

The band on both the cup and saucer is tinted with Apple-Green, the center flower is in Silver-Yellow, the small ones in Capucine Red, the lower petals a little deeper shade of the same color, and the stamens in Brown-4-or-17.

When the design has been painted in, put on the gold lines and handle for the second time, and have the second firing done.

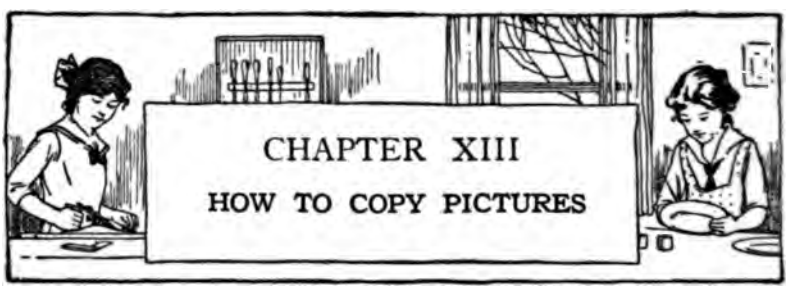
Now, having seen how the seven pieces of china shown in the photographs opposite pages 134 and 144 are decorated, there should be no difficulty in your turning out a satisfactory piece of work all by yourself.

You will not find it difficult

To Adapt Designs to one shape that have been



given for another shape, and besides the designs given here you will be able to make use of those published from time to time in magazines, and you can also procure designs where you purchase your china and painting materials.



CHAPTER XIII

HOW TO COPY PICTURES

IT is possible to make an exact drawing of any picture that you may wish a copy of, by means of

A Glass Reflecting-Frame like that shown in Fig. 267, and this unique piece of apparatus is very simple to make, as you will see by the detail drawing shown in Fig. 268.

All that you need for the construction are two boards (*A* and *B*), two cross-pieces (*C* and *D*), and a small picture-frame with the glass fastened securely in place (*E*, Figs. 268 and 269). Almost any small-sized picture-frame will do, though one that has an opening about 8 inches wide and 10 inches long is of the best size if you can get it.

The boards *A* and *B* should be about 1 inch longer than the picture-frame, and they should be square or nearly square. Place the pieces upon the pair of crosspieces *C* and *D*, with the edge of the picture-frame slipped between them, as shown, and nail them to the crosspieces, driving them tight up against the frame to hold it securely in an upright position. The copying apparatus will then be completed.

To Make a Copy of a Picture, place it upon the left-

hand side of the frame, and place a piece of drawing-paper upon the right-hand side. Then, standing so that you can look into the left-hand side of the glass of the frame, you will see the reflection of the picture to be copied in the glass, and the piece of drawing-paper on the other side of the frame will be seen as a back ground to the reflection of the picture. Keeping the same position, it is now a simple matter to draw out on the piece of drawing-paper each line that you see reflected in the glass. The copied picture will be the reverse of the original, as is indicated in Fig. 267.



FIG. 267.— A Reflecting-Frame for Copying Pictures

A simple and exact method of making a larger or smaller drawing of a picture is that known as

Enlarging and Reducing by Squares. We will suppose that the picture of the rose in Fig. 270 is to be enlarged twice each way, as shown in Fig. 271. With a ruler and pencil, measure off a series of points across the top of the picture, and another series along one

side, spacing them exactly ½ inch apart. Then rule lines from the top to the bottom of the picture, and

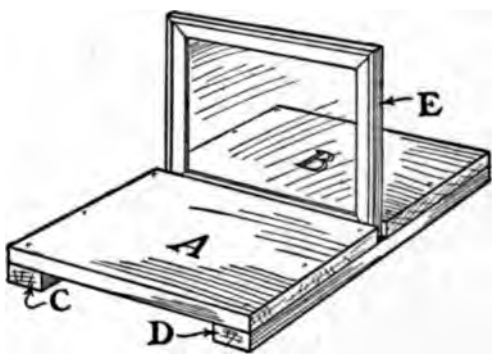


FIG. 268. — The Completed Reflecting Frame

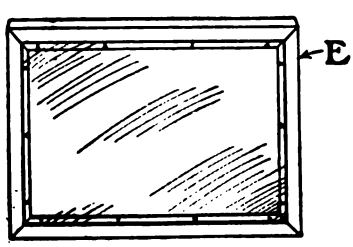


FIG. 269. — Detail of Frame

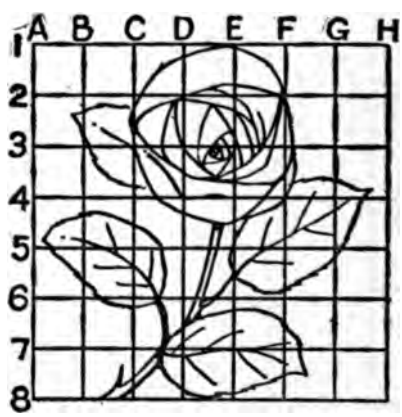


FIG. 270.— How to Prepare the Picture for Enlarging

from side to side, starting each line from one of the points. (Fig. 270).

When the picture has been squared off in this way,

mark off a similar series of points along the top and down one side of a sheet of drawing-paper, but space them 1 inch apart instead of ½ inch, (Fig. 271). Then

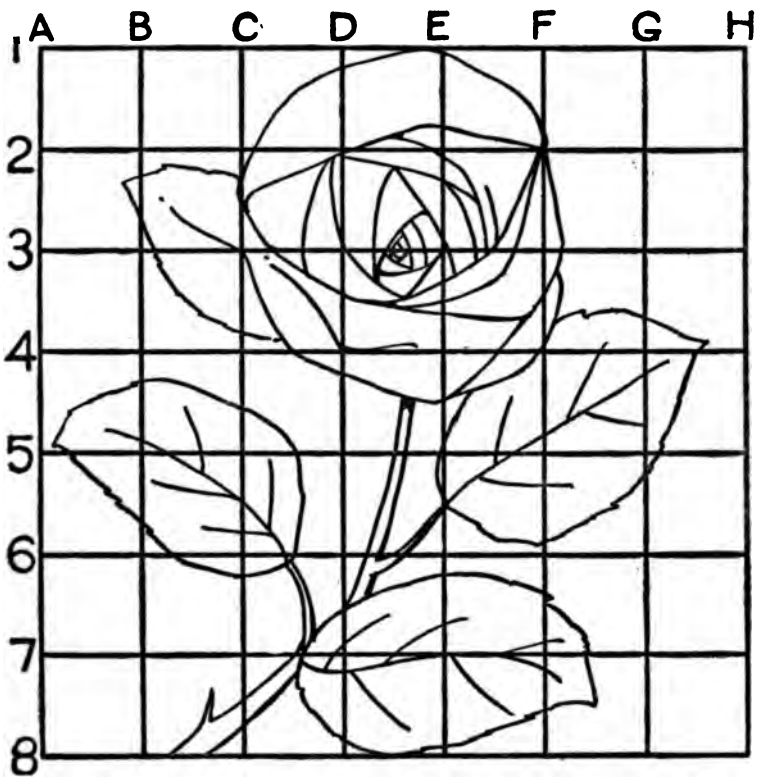


FIG. 271 — The Picture Enlarged

rule lines up and down, and from side to side, in the same way that you ruled them across the original drawing. Letter the ends of the up-and-down lines,

and number the ends of the cross lines, so it will be easy to locate corresponding squares on the small and the large drawing.

With the two drawings thus prepared, it is but necessary to reproduce in each of the large squares exactly what you see included in the corresponding small squares.

You will often have occasion to reproduce a drawing in your handicraft work, and it will be worth your while to know the simple methods which I have described.



CHAPTER XIV

HOME-MADE RUBBER-STAMPS

POSSIBLY you never imagined such a thing as home-made rubber-stamps, but to make them — at least the large type and picture stamps I am going to tell you about — is simple work, and lots of fun, too.

Flat Pieces of Rubber are Needed, and there are several sources from which you can get these. Mother's discarded clothes-wringer has a pair of rollers that can be stripped of their rubber covering, or you can use pieces of a worn-out hot-water bag, or a piece of a bicycle, motorcycle, or automobile tire. If you can't find any such pieces of rubber at home, perhaps you can get them from a friend.

Material in Addition to the Rubber, that is required, includes thread spools on which to mount the stamps, glue, paper for patterns, and a 10-cent ink-pad; and you will need a knife with a very sharp small blade for cutting the rubber.

Figures 272 to 276 show the steps for preparing

A "Letter" Rubber-stamp. The hole in each spool must be plugged with a wooden peg (Fig. 272), and the peg must be cut off even with both ends of the spool, so that a letter may be mounted upon each. Cut a

square of rubber of the size of the letter you wish to make, and glue it upon the spool end; then with a ruler and pencil draw the letter upon the rubber (Fig. 273), or, if you have prints of large type taken from newspapers and magazines, you can cut out a letter and paste it upon the rubber. Paste the letter upside down, of course, because type must read backwards to print correctly (Fig. 278).

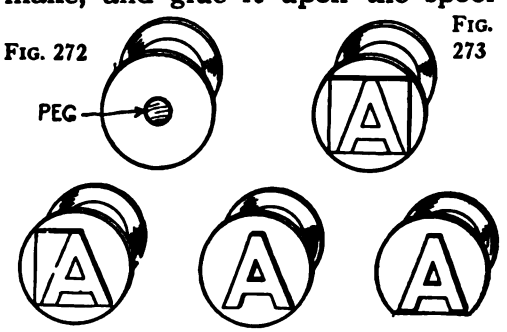


FIG. 272 FIG. 273 FIG. 274 FIG. 275 FIG. 276

FIGS. 272 to 276.— Steps in Making a "Letter" Rubber Stamp

When a piece of rubber has been glued fast to the spool end, and the letter has been drawn or pasted upon it,

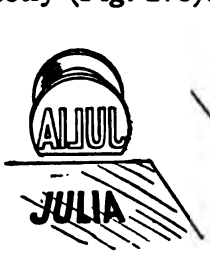




FIG. 278 FIG. 277

FIGS. 277 and 278.— A "Word" Rubber-Stamp How to Make and Use it

Carve out the Letter with your knife, cutting carefully along the outlines of the letter, and removing the pieces of rubber not wanted (Figs. 274 and 275).

Make a Proof of the Letter by printing it upon a

piece of paper, and then trim any places that show up rough.

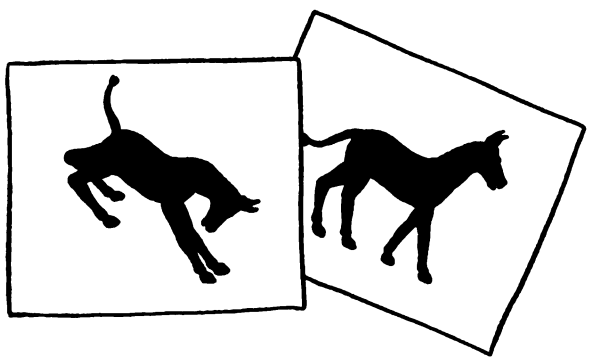


FIG. 280 FIG. 279

FIGS. 279 and 280.— Prints made with the "Mule" Rubber Stamps, Show Two of the Many Possibilities for Poses

To Complete the Rubber-stamp, cut off the edge of the spool end just below the letter (Fig. 276), so, by placing the cut off edge against the edge of a ruler (Fig. 277) it will be possible to print the letter exactly straight, and also get the letters of a word in a straight line.

After you have made a complete alphabet of large single-letter stamps, try your hand at preparing

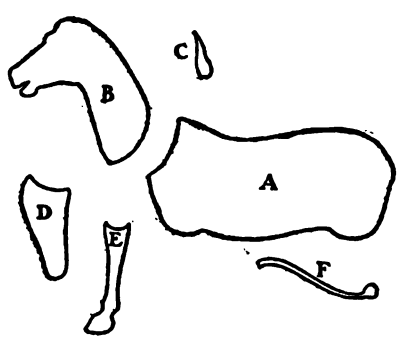


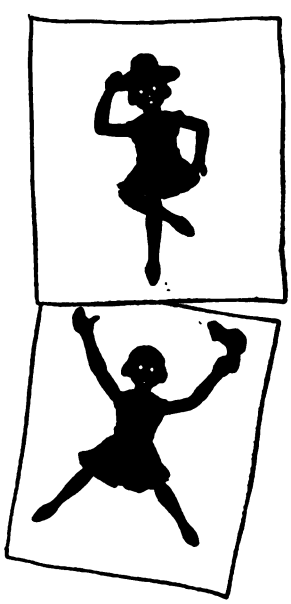
FIG. 281.—Pattern for Parts of the "Mule" Rubber-Stamp

A "Word" Rubber-stamp, like the one shown in Fig. 278. Go about the work of marking out the letters and carving them out, as in making single-letter stamps.



FIG. 282.—Holder for Rubber-Stamp

Picture Rubber-stamps are no more difficult to make than letter stamps, but they require larger pieces of rubber. Figures 279 and 280 show two possibilities for picture making with the parts for a set of



FIGS. 283 and 284.— Prints Made with "Little Girl" Rubber-Stamp

"Mule" Rubber-stamps, and Fig. 281 shows diagrams for the six stamps required to print these pictures — *A* for the body, *B* for the neck and head, *C* for ears, *D* the thighs, *E* the hock and hoof of the legs, and *F* the tail. For a small set of stamps, you may trace the outline of the parts from the book, and transfer them to the pieces of rubber; for a set of larger stamps you can enlarge these diagrams by the process of "Enlarging by Squares" described in Chapter 13 (Figs. 270 and 271).

Figure 282 shows how to make **Rubber-stamp Holders.** Use pieces of cigar-box wood for

the flat pieces, and spools for handles, and tack the former to the latter.

The "Little Girl" Rubber-stamps, from which the pictures in Figs. 283 and 284 were printed, may be made directly from the patterns shown in Fig. 285. *A* is the body, *B* the head, *C* the upper arm, *D* the forearm, *E* the legs, and *F* the hat. Prepare these parts and mount them in the same way directed for the other stamps I have told you about.

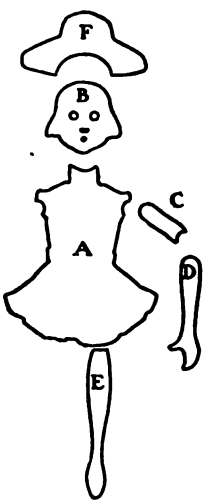
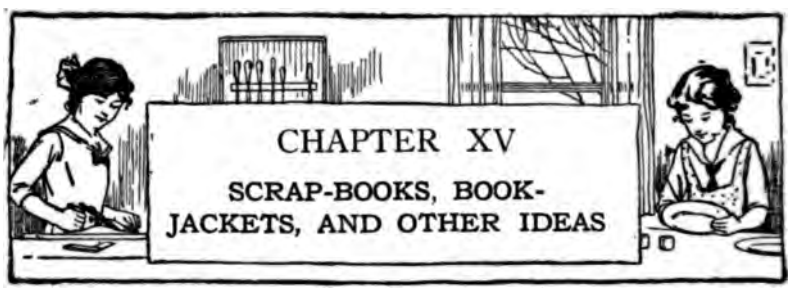


FIG. 285. — Patterns for Parts of the "Little Girl" Rubber Stamp

Unlimited material for

Other Sets of Rubber-stamps may be obtained from newspaper and magazine illustrations, which may be clipped, cut into sections, and pasted upon blocked pieces of rubber, for carving.



CHAPTER XV

SCRAP-BOOKS, BOOK-JACKETS, AND OTHER IDEAS

EVERY girl should own a scrap-book, for, assuming that she clips verse, anecdotes, recipes, handicraft articles, and pictures that she likes and wishes to preserve — and what girl does not? — it is the only satisfactory way of keeping them so that they may be found easily when wanted.

If you haven't a scrap-book collection, now is a good time to start one.

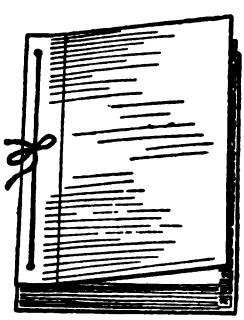
The Home-made Scrap-books shown upon the following pages are of the looseleaf kind, which make possible the removal of, or addition of, pages when and where wanted.

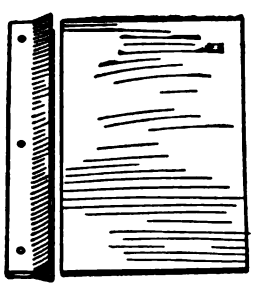
The Covers of your scrap-book may be of cardboard cut from cardboard boxes. If you haven't any boxes at home, you can get them for the asking at a dry-goods store.

The Scrap-book Leaves should be of manila wrapping-paper. Any merchant will sell you what is needed at a trifle more than it costs him. The size of your scrap-book pages should be regulated by the size of the sheets of wrapping-paper, so that the paper may be cut with little or no waste. The

pages should be ¼ inch smaller all around than the covers.

How to Prepare the Front Cover of the scrap-book in Fig. 286 is shown in Fig. 287. Cut a strip 1 inch





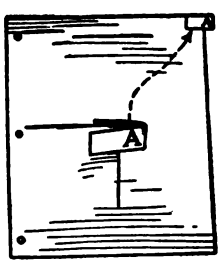


FIG. 286 FIG. 287 FIG. 288

FIG. 286. — A Home-Made Scrapbook
FIG. 287. — Detail of Scrapbook Cover
FIG. 288. — Index Sheet

wide from the binding-edge of this cover, and then with a piece of drilling about 3½ inches wide hinge the strip to the edge you cut it from. Coat the piece of drilling with glue, and fold it over the strip so that its edges will lap over both the upper and lower surfaces of the cover.

Punch three holes through

The Back Cover and through the hinged strip of the front cover, one near each end and one through the center. These holes may be made with the small blade of a penknife.

If you haven't a punch for

Punching the Leaves of the scrap-book, use the point of a nail. Figure 288 shows

How to Index the Pages, with tabs lapped and pasted to both sides of the sheet, and Fig. 289 suggests

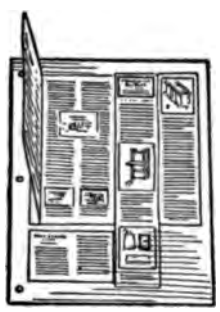


FIG. 289.— How the Scraps are Mounted

an arrangement of scraps. When an article occupies both sides of a clipping, paste it along one margin as shown.

Lace the Covers and Leaves together with a shoe-lace. Pass the lace down through the center holes, along the outside of the back cover to one

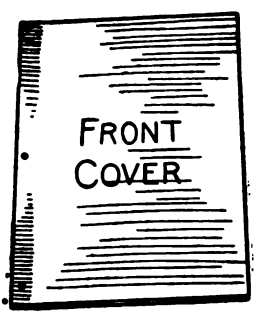


FIG. 290



FIG. 291

FIGS. 290 and 291.— Another Style of Covers for a Home-Made Scrapbook

end, up through the holes at that end, along the front cover to the holes at the other end, down through these holes, along the back cover to the center holes, up through them, and tie the ends in a bow-knot (Fig. 286).

By Finishing the Covers with denim, canvas, or cambric, lapping and sewing the cloth to both sides of the front cover (Fig. 290), and providing flaps upon the piece fastened to the back cover (Fig. 291), a more attractive scrapbook will be obtained, and the leaves will be protected by the flaps, which fold up and over them.

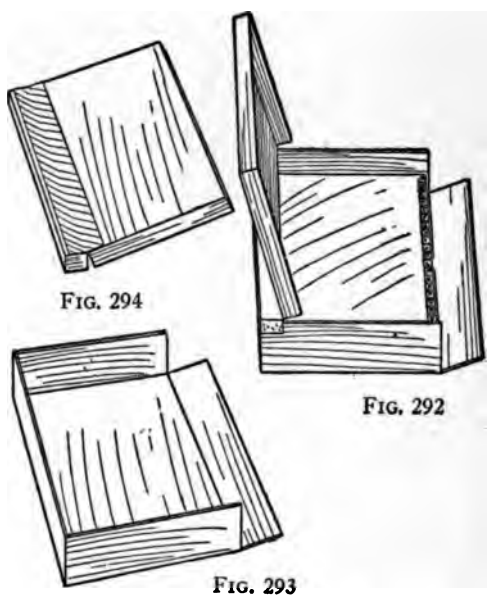


FIG. 294

FIG. 292

FIG. 293

FIG. 292.— A Scrapbook Made Like a Letter-File.
FIGS. 293 and 294.— The Box and Cover for Scrapbook

Figure 292 shows

A Scrap-book made like a Letter-file. Get a cardboard box about 10 inches wide, 12 inches long, and 3 inches deep, separate one long side from the corners, and with a strip of linen hinge it to open as shown in

Fig. 293. Then cut a strip about 1 inch wide from one long edge of the cover, and hinge it back in place with a linen strip (Fig. 294). Place the cover upon the box, and sew the turned down side edge and ends of the hinged strip to the box. The scrap-book will then be ready for its pages which may be prepared as shown in Figs. 288 and 289.

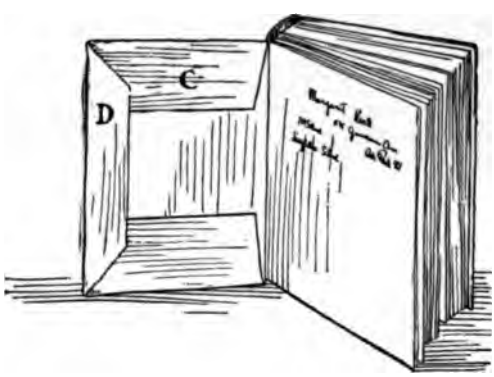


FIG. 295.— A School-Book Jacket

Protect the covers of your school books with paper or cloth

Book-jackets of one of the forms shown upon the following pages, and the books will look as fresh and new at the end of the school year as they did when purchased. Then brother or sister, to whom they are handed down later, will have no reason to complain of having to use old books. These jackets are put on

so quickly, too, that it is a simple matter to replace them when soiled.

Heavy glazed brown wrapping-paper makes the best

Paper Jackets (Fig. 295). If you have none in the house, get a sheet or two from your grocer. Place the book to be covered upon a piece of the paper (Fig. 296), open it, and mark out around the edges of the cover, then measure off a margin of 2½ or 3 inches outside of

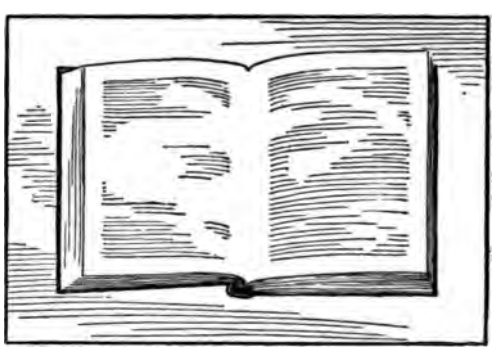


FIG. 296. — Leave a Margin of 2½ or 3 inches Around the Book

this, and cut out the piece. Next, cut away the corners *A* (Fig. 297), and cut and bend over the tabs *B*. The dotted line represents the outside line of the covers, and with this as a guide it is a simple matter to snip away corners *A* with a pair of scissors. Tabs *B* should be as wide as the book is thick, and should be located in the center of the top and bottom margins. Cut their edges obliquely as shown.

After folding the tabs, place the opened book inside of the margins, and fold flaps *C*, then the flaps *D*, over on to the covers (Fig. 295). Daub glue or mucilage upon the under side of the ends of flaps *D*, and press down upon flaps *C*. On jackets for large covers, it is best to increase the widths of flaps *C* and *D*, so there will be a greater width of laps to paste.

Cloth Jackets are more durable than paper ones.

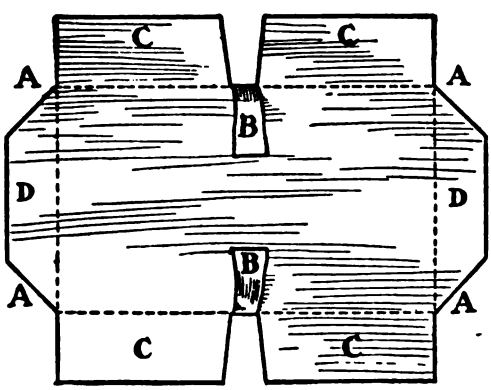


FIG. 297. — Diagram for Cutting School-Book Jacket

Grey or brown cambric dress-lining is best. Cut the cloth exactly the same as described for the paper jacket (Fig. 297), but instead of pasting the flaps together, tack their corners with thread (Fig. 298). Then lace thread back and forth from the upper flaps to the lower ones, as shown in Fig. 298, pulling the lacings taut to make the cloth fit the covers snugly, and to hold it in place.

If you are handy with a pen or brush, you can **Letter the Book Title** upon the jacket, as indicated

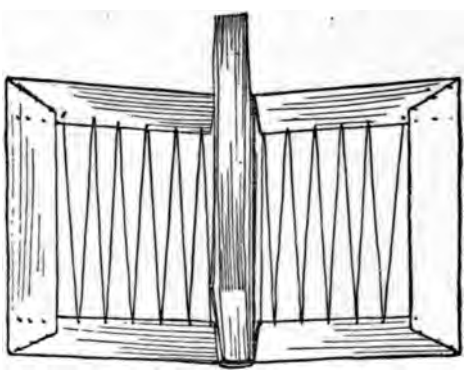


FIG. 298. — Another Form of School-Book Jacket



FIG. 299. — Letter the Book Title on Cover as Shown above

in Fig. 299. This work should be done before the jacket has been put on, so the ink or paint will not soak through on to the book-covers.

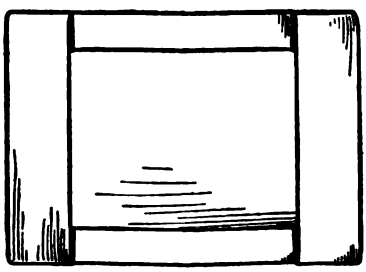


FIG. 300

FIG. 300. — A Canvas School-Book Jacket

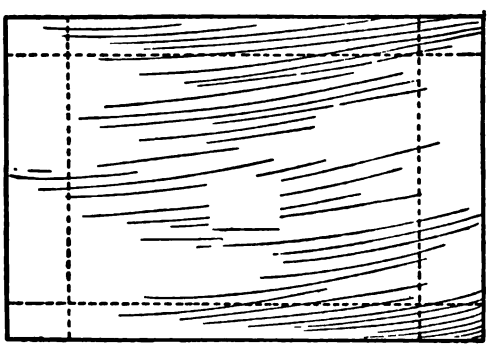


FIG. 301

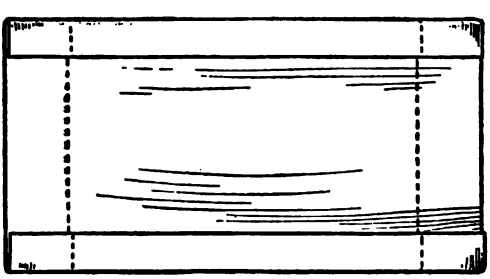


FIG. 302

FIGS. 301 and 302.— Details for Folding Canvas Jacket

The Canvas Jacket shown in Fig. 300 requires heavy material because it must be stiff enough to hold its shape. The dotted lines in Fig. 301 indicate the margin to leave outside of the book-covers, also the lines on which to fold. The top and bottom margins should be 1½ inches wide, the side margins 3 inches wide. Fold the top and bottom margins over first, as indicated in Fig. 302, then the side margins; and tack the under folds of the ends

of the side margins to the folds of the top and bottom margins. The result will be a pocket on each side edge of the jacket (Fig. 300). In putting the jacket upon the book, it is but necessary to slip the book covers into these pockets.

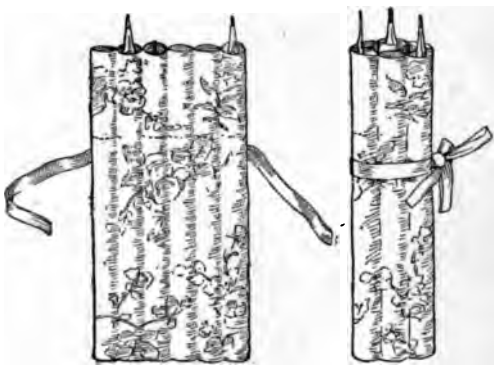


FIG. 303 (Unfolded) FIG. 304 (Folded)
FIGS. 303 and 304. — A Pencil-case

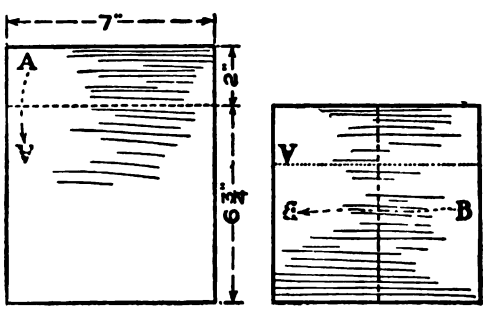


FIG. 305 FIG. 306
FIGS. 305 and 306.— Diagram for Cutting and Folding Pencil-case

To keep pencils and the penholder from scattering about in the school desk, every girl should have a pencil-case. A small box may be made out of cigar-box wood, with a cover hinged on with cloth or leather hinges, but the

Cloth Pencil-cases shown in Figs. 303 and 307 are easiest for a girl to make.

Cretonne of a dark color, with a small pattern, is

the best material to use. For the case shown in Fig. 303, first cut a piece of cloth 7 inches wide and 8¾ inches long (Fig. 305). Then turn down 2 inches of its length (*A*, Figs. 305 and 306), and stitch the turned-over edge as indicated by the row of small dots in Fig. 306. The heavy dotted line in Fig. 306 indicates where to make the second fold, to bring side *B* over to

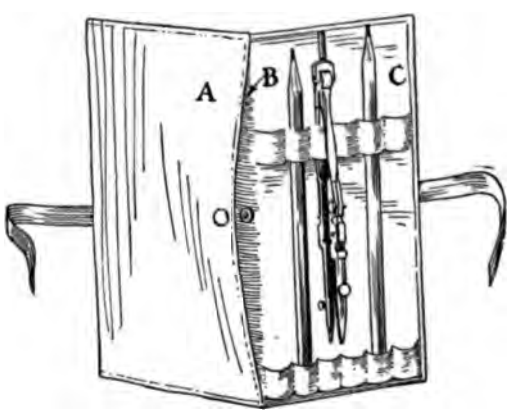


FIG. 307.— Another Style of Pencil-case

the opposite side. Turn in enough of the side and bottom to conceal the cut edge of the cloth; then stitch along the side and across the bottom.

The pockets are partitioned off with up-and-down rows of fine stitching. In a holder of the width given, five rows of stitching will make six pockets of the right size so the pencils will fit snugly. If you like, one or two of the pockets may be made a trifle narrower than the others, to provide for slim pen-holders.

Sew a short piece of tape to the center of one side of the holder, to provide for tying the holder in a roll (Figs. 303 and 304).

Some of you girls will prefer

The Other Style of Case, shown in Fig. 307, because of its pocket for erasers, pencil-sharpeners, pen-knife, pens, pencil-ends, etc. Figure 308 shows the pattern

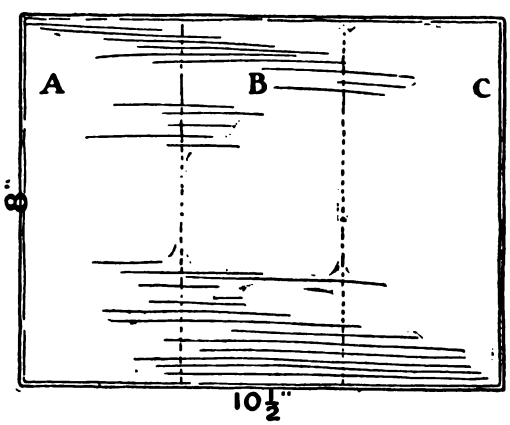


FIG. 308. — Pattern for Pencil-Case Shown in Fig. 307

by which to cut the cloth; also, how the edges should be turned over slightly, or else be bound with a narrow braid, to conceal the raw edge. The dotted lines indicate the folding. One outer third (*A*) folds over on to the center third (*B*), to form the pocket, and it is stitched to *B* along the top and bottom edges; and the other outer third (*C*) is provided with small pockets for pencils. Form the pencil pockets with pieces of

tape. Stitch the bottom tape along the bottom edge, as well as at the ends. Partition off the pockets by rows of stitching.

Sew a dress snap-fastener to parts *A* and *B*, for fastening shut the large pocket, and sew a piece of tape to the center of the back of the case for tying it after it has been closed and rolled up.

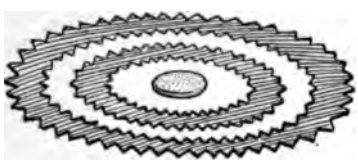


FIG. 309. — A Pen-Wiper

The Pen-wiper shown in Fig. 309 is composed of four layers of light-weight flannel, cut 4½, 3¾, 3 and 2¼ inches, respectively, in diameter, and sewed together through their centers, with a fancy button sewed to the top.

Figure 310 shows the four circular pieces placed one on top of the other. This diagram also shows by dotted lines how to prepare the pieces by first folding over a square of cloth from top to bottom, then from side to side, and then from corner to corner, into the form of Fig. 311. Cut

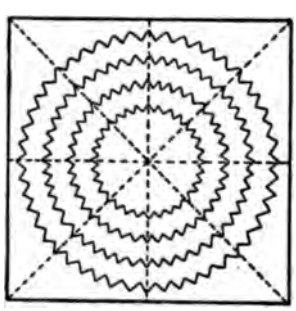


FIG. 310

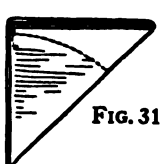


FIG. 311



FIG. 312

FIGS 310 to 312.— Diagrams for Cutting Pen-Wiper

off the upper corner on an arc of a circle, as indicated by the dotted line in Fig. 311, and notch the folded edges (Fig. 312).

Use two colors of flannel, alternating them, and you will have a most attractive pen-wiper.



FIG. 313



FIG. 314

A Drawing-instrument Protector. Never carry a pointed instrument in your pocket, or lay it away in your desk, without protecting its points. A cork pushed far enough on to the points to hold fast, makes an excellent protector (Figs. 313 and 314).



CHAPTER XVI

A HAT-BOX DOLL APARTMENT

YOU might not imagine that by cutting down along one corner, then across the bottom of a hat-box, the sides may be opened out to form a splendid little doll-house, yet this is how the unique three-room apartment shown in Figs. 315 and 316 was made.

Transforming the hat-box, cutting the doors and windows, making the inside woodwork out of strips of paper, the window curtains out of scraps of lace, and the rugs out of scraps of cloth, and building the furniture out of spools and cardboard, is all such simple work that a girl can entirely complete the apartment in an afternoon. The compact form into which the walls may be folded, with the box-cover fitted down over them to hold them together (Fig. 317), is another feature of this hat-box apartment.

The Hat-box should be one of the substantial kind with lapped and pasted corners, not the flimsy folded kind. If one corner of the box is weaker than the other, that is the one to cut.

How to Prepare the Box. Use a sharp knife, and, after slitting the corner from the top to the bottom, draw a straight line across the bottom from this corner



FIG. 317.—AFTER PLAYTIME THE HALVES ARE FOLDED INTO THEIR ORIGINAL BOX FORM, AND THE COVER PUT ON TO HOLD THEM TOGETHER

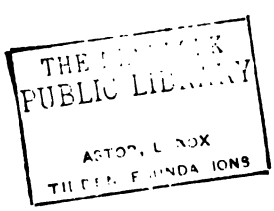


FIG. 315.—THE OPEN HALVES OF THE HAT-BOX, SHOWING ONE HALF FURNISHED AS A DINING-ROOM, AND THE OTHER HALF AS A BEDROOM



FIG. 316.—VIEW OPPOSITE TO THAT IN FIG. 315, SHOWING THE SPACE BETWEEN THE HALVES FURNISHED AS A LIVING-ROOM




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TILDEN FOUNDATIONS

to the corner opposite, and cut the cardboard on this line. With the bottom cut, one of the halves can be swung half-way around into the position shown in Figs. 315 and 316.

Reinforce the Corner on which the halves swing, to keep it from pulling apart, by gluing a strip of linen over its entire length. This strip will serve as a hinge.

One half of the opened box will form

The Dining-room of the apartment, the other half

The Bedroom (Fig. 315), and the space between is

The Living-room (Fig. 316). A floor for the living-room must be cut from a piece of cardboard, triangular in shape (Fig. 318), to fit exactly between the halves of the box. Make this piece of the exact size of one of the bottom halves.



FIG. 318 — This Triangular Piece is the Living-Room Floor, Cut to Fit Between the Box Halves.

Use a ruler and pencil with which to

Locate and Mark Out Doors and Windows. Make the doorway leading from the dining-room into the living-room about 4 inches wide by 8 inches high, the doorway from the bedroom into the living-room of the same height by 3 inches wide, and the bedroom and dining-room windows 3 inches wide by 6 inches high. Place the doorways in the center of the walls, the dining-room windows near the corners, and the bedroom window to the far corner of the room. Be careful to

get the tops of the windows even with the tops of the doorways. Use a sharp knife for cutting the openings, and cut exactly on the line.

After cutting the openings, the next thing to do is to finish the inside of the walls. Use brown wrapping-paper to represent

The Dining-room Woodwork. Paste narrow strips of this around the openings, a wider strip around the walls at the floor for a baseboard, and a strip of the same width around the top of the walls for beams. There should be

A Wainscoting in this room, made of paper of a lighter brown than that used for the woodwork, and this should be divided off by narrow strips of the darker-brown paper to form panels; also, a strip of the same darker-brown paper should be run around the top of the wainscoting for a plate-rail. Above the wainscoting the paper lining of the box may be left for the wall finish.

The Buffet is built in between the windows. Figure 319 shows how it is made. A box of the length of this space, 2 inches wide, and 2½ inches high is required for the lower portion (*A*, Fig. 319). If you cannot find a candy box of these proportions, cut down a larger box. The upper portion *B* may be cut from a box-cover. Make it of the length of *A*, and 1¼ inches wide, with a narrow projecting rim glued around its edge as shown. Cut the top shelf *C* large enough to form a projection of ⅛ inch over the front and ends of *B*, and glue it to *B*. The top of the buffet is sup-

ported upon columns made of two spools each, glued together end to end (*D*, Fig. 319). Glue the lower end of the spool columns to *A* and the upper end to *B*.

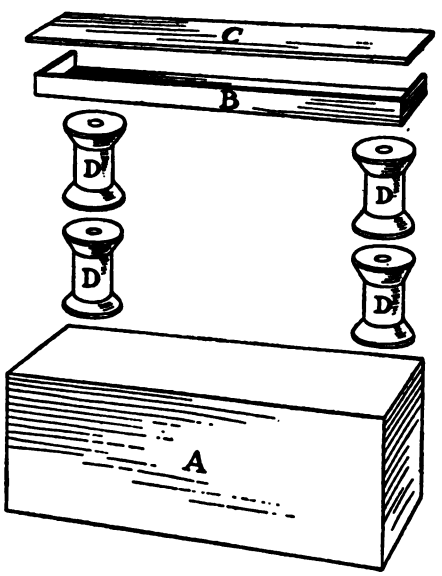


FIG. 319 — The Dining-Room Buffet, Made of Spools and Cardboard.

If you can get a small piece of mirror, fasten it to the dining-room wall in the proper place so it will come between the buffet columns and between the lower portion *A* and upper portion *B*; if not, glue a piece of tinfoil over this portion of the wall. Then glue the back edges of the buffet to the wall.

If the paper lining of the hat-box is grey, leave it for the finish of

The Bedroom Walls. In that case, use strips of white paper for the door and window woodwork and the baseboard. Paste a narrow strip to the walls even with the tops of the doors and windows, and to this glue a piece of wrapping-twine, for

A Picture-molding (Fig. 315). Above the picture-molding make a frieze of

Pictures cut from magazines. Paste other small pictures here and there upon the walls, and indicate picture-wire by drawing pencil lines from the pictures up to the molding.

Curtains for the dining-room and bedroom windows may be made out of scraps of lace. Fasten these at the tops of the openings with small tacks.

The outside surface of a hat-box is usually of a different color from the inside, and perhaps the color of your box will be just right for

The Living-room Walls (Fig. 316). If not, cover these walls with a plain blue, green, or red paper. Paste a wide strip of a different shade of paper around the top of the walls for a frieze, and make the door woodwork, baseboard and picture-molding of strips of brown paper.

The Doll Furniture shown in the illustrations is made of spools and cardboard. The backs and seats of

The Chairs for both the living-room and dining-room may be made similar to the pattern shown in Fig. 320 — the seats 1¼ inches square, the backs 3¼ inches high. Make one or two bedroom chairs with seats and backs like the pattern shown in Fig. 321 — the seats 1¼ inches square, the backs 2¼ inches high. Round the top of the back, and cut three openings through it as shown. Glue each chair seat to a spool end.

The Living-room Table is made by nailing a thin piece of wood 3 inches wide and 5 inches long to four spools of equal size (Fig. 316), and

The Dining-room Table is made by gluing a circular piece of cardboard 4½ inches in diameter to the end of a large spool (Fig. 315).

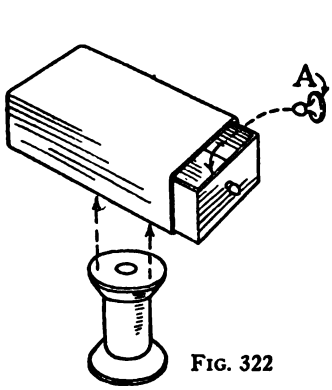


FIG. 322



FIG. 321

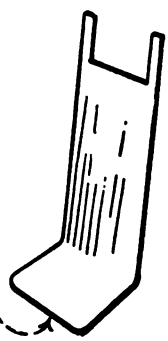


FIG. 320

FIG. 320.— Cardboard Seat and Back for Living-Room Chairs
FIG. 321.— Cardboard Seat and Back for Bedroom Chair
FIG. 322.— Table with Drawer Made Out of a Pill-Box

The Bedroom Table which is shown in Fig. 315, has a top made of a pill-box, the kind with a sliding cover (Fig. 322). The pill-box forms a drawer, and this is opened by means of a collar-button inserted in the end of the box (*A*, Fig. 322). Glue the pill-box to a spool pedestal.

The Four-poster Bed (Fig. 323) has four spool legs (*A*), upon which a piece of cardboard 4 inches wide and 7 inches long, with edges turned down (*B*) is glued at its corners. Four round sticks, of the diameter of a pencil and 4 inches long (*C*) fit into the spools for corner posts.

Rugs made from scraps of cretonne, denim and felt will provide the finishing touches to the furnishings of the doll apartment.

Plans and directions for building

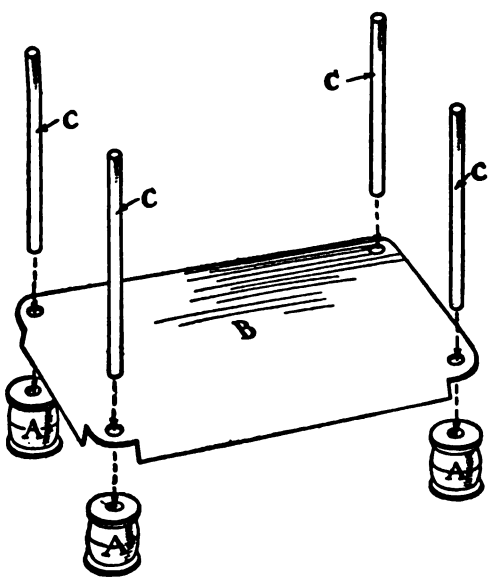


FIG. 323 — Four-Poster Bed

A Unique Doll Apartment Building of three stories are given in Chapter 16 of "Home-made Toys for Girls and Boys", and plans for a doll-house, a garage or stable, and for many pieces of doll furniture are given in other chapters of the same volume; also additional suggestions for furnishings, including ideas for home-made light-fixtures.



CHAPTER XVII

CARDBOARD-BOX DOLL FURNITURE

CARDBOARD boxes—large, small, round and square ones, suggest many possibilities for pretty doll furniture. I have shown you several designs in the preceding chapter, several designs are shown in this chapter, and you will think of other designs when you have gathered together an assortment of shapes and sizes of boxes and placed them before you on your work table.

The Doll-bed shown in Fig. 324 is made from a candy box or box in which fancy stationery has come. Get the kind of which the box telescopes into the cover.

In Fig. 325, *A* shows how the foot and sides of the bed are made from the box, and *B* shows the cover used for the head and canopy. Cut away the sides of box *A* as indicated by dotted lines, to make them of the form shown in Fig. 324. Then cut and bend down the head end of the box, (Fig. 325) and, slipping this inside of the cover, fasten it with glue or by sewing with needle and thread. This completes the bed shown in the illustration. You may elaborate upon it, if you wish, by gluing cardboard feet to the bottom.

An inverted pill-box, with the cover removed, is needed for the top of

The Table shown in Fig. 326. The legs (*B*) are made of pieces of cardboard folded as shown in Fig. 327, and they are glued or sewed inside of each of the four corners of the box top.

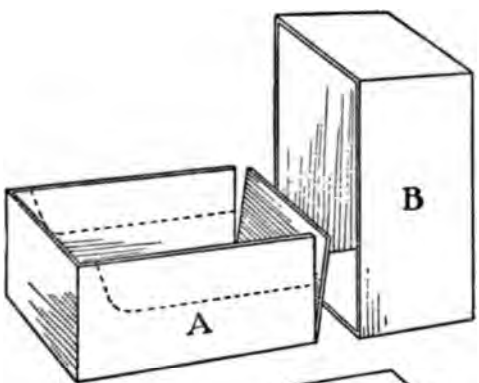


FIG. 325

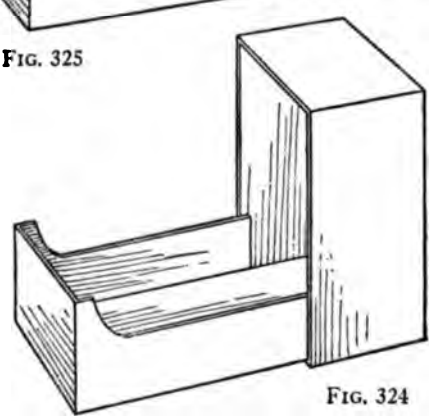


FIG. 324

FIG. 324. — A Bed
FIG. 325. — Detail of Bed

A Table of more Elaborate Design, though one quite as easy to make, is shown in Fig. 328.

Like the table in Fig. 322 (Chapter 16), the top of this table is a pill-box, the kind that has a sliding cover (*A*, Figs. 328 and 329). Cut the two sides (*B*) of the form shown in Fig. 329, and fasten them to the sides of the box with glue or by sewing. A collar-button pushed through a hole pierced in the end of the drawer (Fig. 328) forms a good knob.

The Arm-chair (Fig. 330) is made out of the sliding

cover of a pill-box. The dotted lines in Fig. 331 show the necessary cutting. The chair seat is made by folding back the upper portion of the side used for the front of the chair, and gluing or sewing it between the arms.

A small box-cover forms the seat of

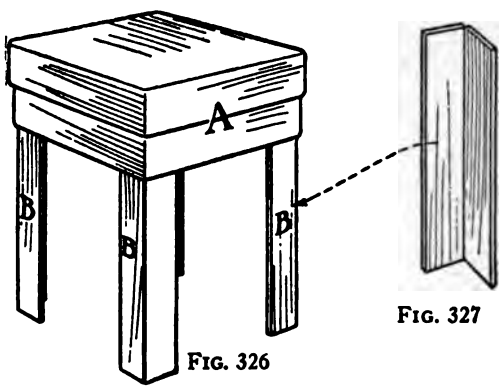


FIG. 326

FIG. 327

FIG. 326.— A Table
FIG. 327.— Detail of Leg

The Straight-back Chair shown in Fig. 332. The legs are formed of two pieces of cardboard (*A* and *B*, Fig. 333), one having a slit cut from its bottom edge to the center (*A*), and the other from its top edge down to its center (*B*). By cutting the slits

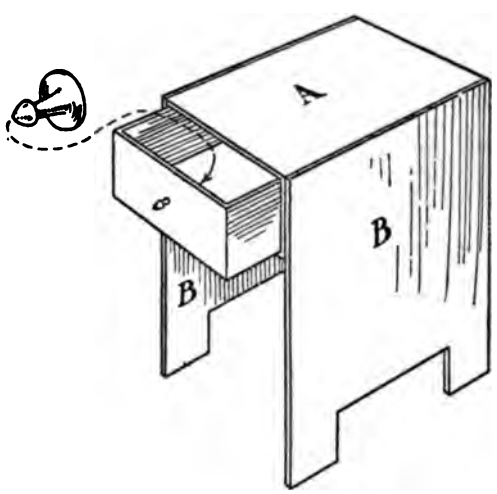


FIG. 328.— A Table with Drawer

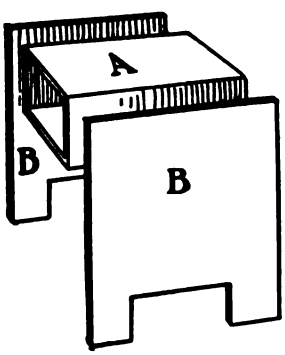


FIG. 329. — Detail of Table with Drawer

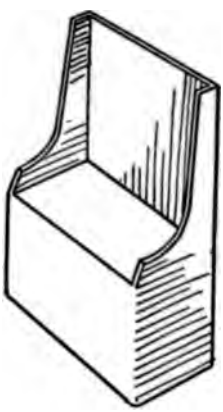


FIG. 330.— An Arm-Chair

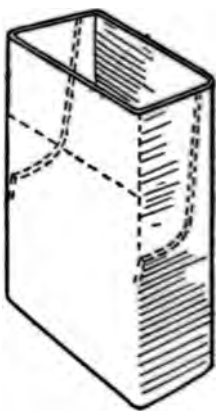


FIG. 331.— How to Cut Down Box for Arm-Chair

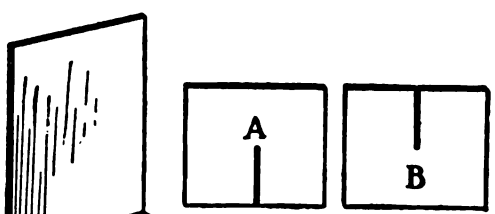


FIG. 333

FIG. 332

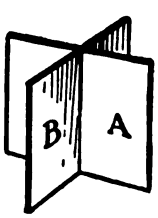


FIG. 334

FIG. 332.— A Straight-Back Chair
FIG. 333 and 334.— Details of Chair Base

in this manner, the pieces will fit together as shown in Fig. 334. Glue or sew them together, and then fasten to the under side of the seat. The chair back is made of a piece of cardboard of the width of the seat, and is glued or sewed to the rear edge of the seat.

Other Ideas for Doll Furniture, made of cigar-box wood, of cardboard, and of spools, are presented in Chapters 17, 18 and 19 of "Home-made Toys for Girls and Boys."



CHAPTER XVIII

A DANCING DOLL

THE little dancing doll shown in Fig. 335 will dance as gracefully as a fairy and will keep time to whatever music you may furnish.

The Materials required to make it are a piece of thin white cardboard, a coarse thread and needle, some pink water-color paint or a pink crayon-pencil, four broom-straws, and a piece of tissue-paper.

The first thing to do is

To Prepare the Parts of the Doll, and as these are shown natural size in Figs. 336 to 339, they can be traced off from the page on tracing-paper. Only one arm and one leg are shown, because the patterns can be reversed for the other arm and leg. Transfer the tracings upon light-weight cardboard.

To Assemble the Parts, pierce holes through them with a pencil-point or a hat-pin, at the points *A*, *B*, and *C* (Figs. 336 to 339), and join the correspondingly lettered holes with thread, tying a knot on each end of each thread enough larger than the holes to keep the parts from slipping off. Figure 340 shows the completed doll. The circular piece with the center cut out of it, shown in Fig. 341, fits down over the

doll's body, resting upon its hips, (Fig. 340). It is cut through on one side to make it easier to slip it over the doll's body. This piece forms the top of

The Standard which supports the doll while dancing. Pierce four holes through it, near the outer edge, and



FIG. 335.—Tap the Cardboard, and the Doll will Dance

at equal distances apart; insert a broom-straw in each hole, bend the top over, and glue it to the cardboard so that it will not slip out. Cut off the lower ends of the straws so that they will extend just a trifle below the doll's feet when the doll is stood upon its broom-straw standard.

To Dress the Doll, cut a strip of tissue-paper 3½ inches wide and 25 inches long, pleat or gather it, and

sew it around the doll's waist for a skirt. Then make a waist out of the same material and sew it in place.

FIG. 338

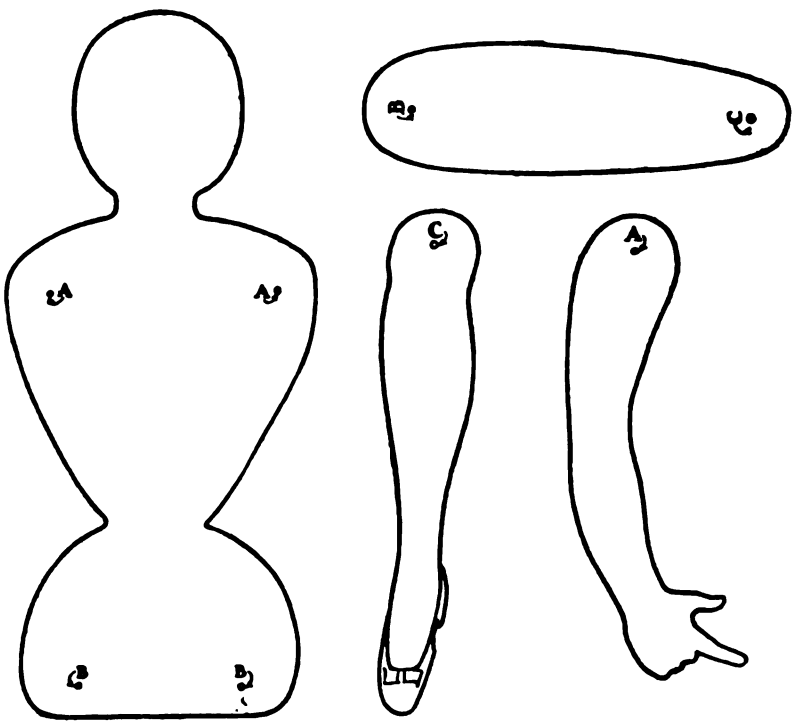


FIG. 336 FIG. 339 FIG. 337

FIGS. 336 to 339.— Full size Patterns of Parts for Dancing Doll

Cut a pretty head of the right size from a magazine, and paste it to the doll's head, then color the face and arms a flesh-pink and paint the shoes and stockings to match the dress.

To Make the Doll Dance, place her upon a piece of cardboard with the end of the cardboard extending over the edge of the table, tap the edge of the cardboard with your fingers, and you will be delighted with the gracefulness of the little dancer.

By making several other dolls, using this one as a pattern, you may arrange all upon the piece of card-board and have

A Doll's Dancing-party. The dolls should not be made to look alike, but as different as possible. This will be quite easy to do. A variety of pretty heads will be found by a careful search among fashion pictures and magazine illustrations, and with tissue-papers of different colors to work with, there will be no limit to the number of styles of pretty party dresses that you can devise. Tissue-paper doll-dressing is fun, and just the right kind of fun for an afternoon when the weather is too disagreeable for you to play outdoors.

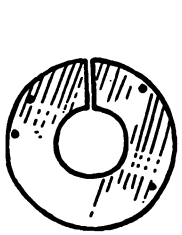


FIG. 341



FIG. 340

FIG. 340.— Assemble the Parts of the Doll like this

FIG. 341.— Top of Standard for Supporting the Doll



CHAPTER XIX

TOY WHIRLIGIGS

THOUGH so simple that they require almost no time to prepare the toy whirligigs in the illustrations make up for their lack of construcive work in being fun-producers that amuse as long as there are new friends to show them to.

The Paddle Whirligig in Fig. 342 requires a disk of alternate white and black rings like that shown in Fig. 343. Describe the rings with a compass upon cardboard, and fill in every other ring with black ink; then trim the cardboard even with the outside of the disk, leaving a strip on one side for a handle.

To Operate the Toy, hold the handle in one hand, give the disk a rotary motion, and look steadily at the center of the disk. In an instant you will discover the black and white rings of the disk to be revolving in the direction opposite to that in which you are rotating the disk. They do not actually revolve, of course. The effect is merely an optical illusion. By giving the book the same motion, you can produce the same effect with the diagram on the page.

Figure 344 shows another application of the same optical illusion in

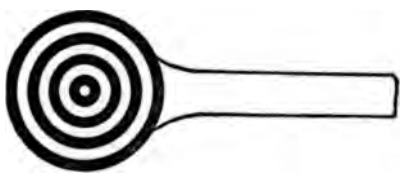


FIG. 342. — The Paddle Whirligig

A Speeding Automobile. Give the picture a rotary motion, focus your eyes upon the center, and the wheels will appear to turn. Hunt up a larger picture of an automobile, paste it on cardboard add whirligig wheels, and you will have a better whirler.



FIG. 343. — Detail of Disk

The Buzz-saw Whirligig shown in Fig. 345 can be made with a cardboard disk of the size of that in Fig. 343, with saw-teeth cut around its edge (Fig. 346), or a disk cut from the end of a tin can, or a large button (Fig. 347). Two holes must be pierced through the

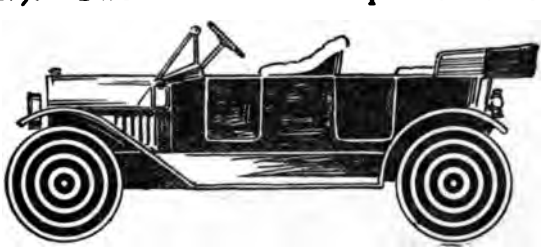


FIG. 344. — A Speeding Automobile

cardbard or tin disk for the operating cord to pass through. Use cotton string for the cord, and after slipping it through each hole, allow a projection of 12 inches, cut off, and knot together the ends. Slip the first finger of each hand through an end loop, and

FIG. 346 FIG. 347

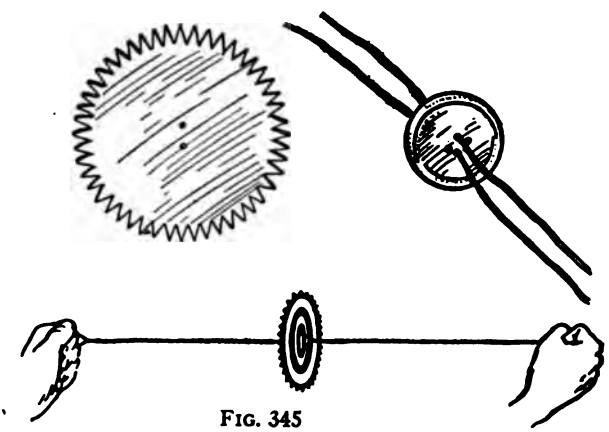


FIG. 345

FIG. 345. — The Buzz-Saw Whirligig
FIG. 346. — Detail of Cardboard Disk
FIG. 347. — Whirligig Made from a Large Button

whirl the disk in one direction until the string is twisted from the ends as far as the center. Then pull firmly on the string and the disk will whirl in the opposite direction until the string has become untwisted. Slacken your hold and the string will twist up again. Alternate the pulling and the slackening of the string, in this way, and the disk will spin continuously, first in one direction, then in the opposite.

The Magic Pinwheel Whirligig in Fig. 348 consists of a stick with notches along one edge, and a thin chip of wood fastened at its exact center by a pin to the end of the stick (Fig. 349). Cut the notches of equal size. Make the hole in the chip just large enough so that the chip will turn easily, and drive the pin pivot exactly straight.

FIG. 349

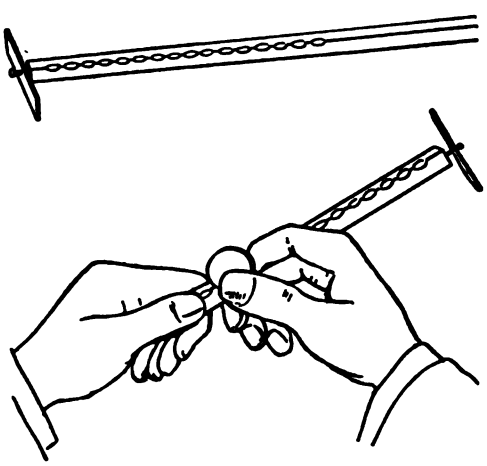
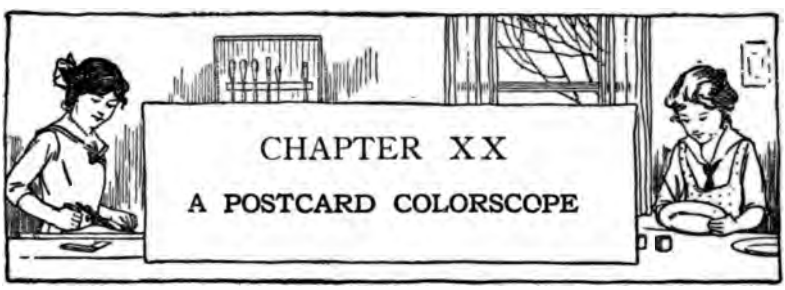


FIG. 348.—Operating the Magic Pinwheel Whirligig
FIG. 349.— Detail of Pinwheel Whirligig

Hold the pinwheel in the left hand as shown in Fig. 348, to operate it, and with a coin in the right hand rub vigorously along the notches. This will cause the stick to vibrate, and the vibrations will make the chip spin around. The direction in which the pinwheel revolves may be determined by the positions of the first and second fingers of the right hand. To make it spin from left to right, allow the first finger to rub along the upper edge of the notches; to make it reverse, press the second finger against the lower edge of the notches. The positions of the fingers

can be changed without attracting the attention of any one, and you can thus make the pinwheel turn in either direction you command it to without any one detecting how you do it.

A tack driven into the stick below the notches, at about the point where the thumb of your left hand will strike, will add to the mystic appearance of the pinwheel. A person invariably notices this the first thing when he sees you operate the wheel (you can make it a point to press your left thumb against the tack), and thinks he has solved the trick. But when you let him have the toy, he will soon find out that all his pressing and pulling upon the tack will have no effect upon the wheel, and beg you "to put him on to" the trick.



CHAPTER XX

A POSTCARD COLORSCOPE

WITH the home-made colorscope shown in Fig. 350 you can make uncolored picture postcards appear colored, and colored cards in other colors than those in which they have been printed. The little toy with which to produce these color effects is very simple in construction and can be made quickly.

The Colorscope Case is made of a shoe-box and Fig. 351 shows how the box and its cover should be prepared. Cut the opening *A* in one side of the box, near one end, about 3 inches wide by the full depth of the box. Then from the rim of the cover cut a piece of corresponding width, in the right position to come directly over the opening in the side of the box. Across the top of the cover, at the same end of the cover that opening *A* has been cut through, cut a slot about ¼ inch wide (*B*, Fig. 351). Leave about ¼ inch between this slot and the side edges of the cover. In the end of the box opposite to that on which you have been working, cut a pair of holes about 1¼ inches in diameter. Space the pair 1 inch apart, and place them in the exact center of the box end, as shown. With the cutting done, fasten the cover to the box

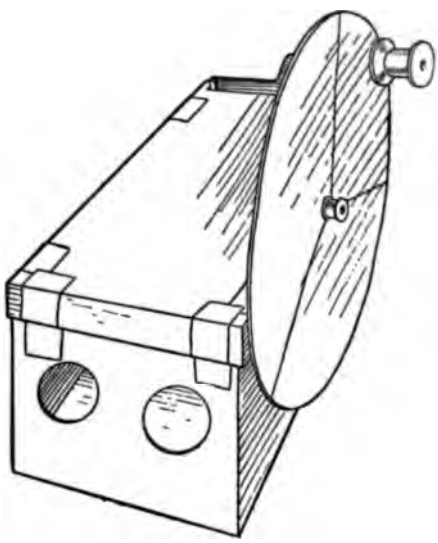


FIG. 350. — The Postcard Colorscope

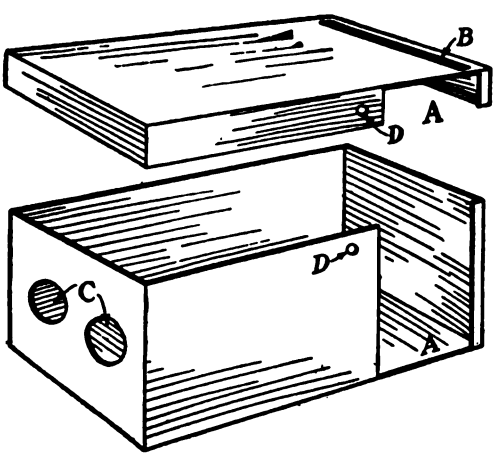


FIG. 351. — The Postcard Colorscope

with paper strips pasted in place as shown in Fig. 350.

Figures 352 and 353 show how to make

The Holder for Postcards that are to be viewed in the colorscope.

The dotted lines in Fig. 353 show where to bend the edges. Fold the side edges over to form the grooves for the pictures to slide into, and bend the lower edge out straight for the pictures to rest upon. The tab upon the top edge is provided for raising and lowering the holder through slot *B* in the box

cover (Fig. 351). Make the holder of the right width to fit loosely into slot *B*, and of the right height so its top edge will come a trifle above the box cover when the holder has been dropped through the slot (Fig. 350).

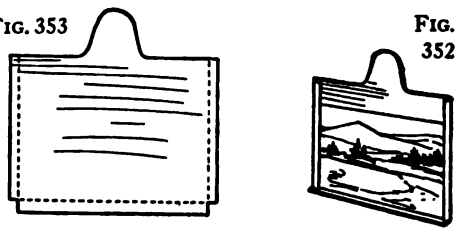


FIG. 353 FIG. 352

FIGS. 352 and 353.—Details of Postcard Holder

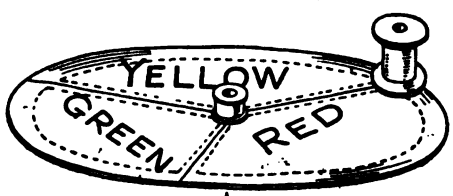


FIG. 355

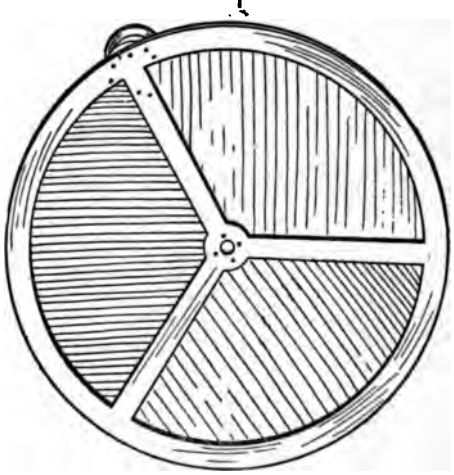


FIG. 354

FIGS. 354 and 355.— Details of Color Screen

All that now remains to complete the toy is

The Color Screen, and this is shown in detail in Figs. 354 and 355. It consists of a cardboard disc about 12 inches in diameter. Cut it from a large cardboard box, using the rim of a dinner plate with which to mark out

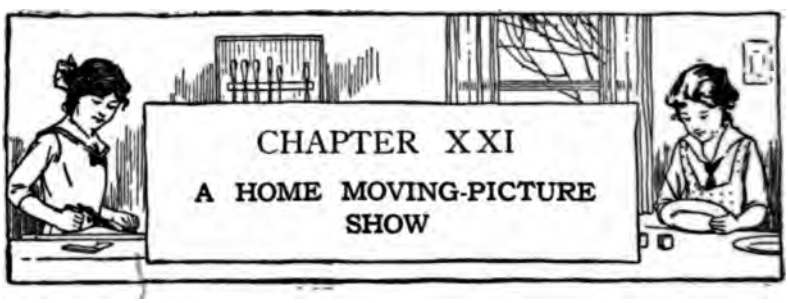
the outer circle of the disk, if you haven't a compass. Three openings of an equal size should be cut in this disk, with strips left between them just wide enough to hold the center in place, and a rim around them wide enough to be rigid (Fig. 354). Get three pieces of tissue-paper — red, yellow, and green, if possible, and paste them over the openings in the disk as shown in Fig. 355. Then punch a ¼-inch hole through the center of the disk, and fasten a small silk-thread spool over the hole for a hub. Tack through the disk into the end of the spool, as indicated in Fig. 354. To the outer edge of the rim, fasten a common thread spool for a handle.

For Mounting the Disk upon the box, you need a stick shaft, and a hole must be punched through each side of the box, in the position shown at *D* (Fig. 351), for this shaft to run through. The spool hub should fit snugly upon the shaft, so disk and shaft will turn together. Make the shaft long enough to extend through the box and project an inch beyond the farther side, and drive a pin or brad through the projecting end to keep the shaft from pulling out of the holes.

To Operate the Colorscope, slip a postcard into the holder, and drop the holder through the slot in the box cover; then stand beside a window, with the side of the box on which the disk is mounted turned toward the light, look through the pair of holes in the end of the box, and turn the disk handle so as to allow the



light to pass through each of the three pieces of colored tissue-paper. The light passing through the yellow tissue-paper will produce a sunlight effect, that passing through the red will produce a sunset effect, and that passing through the gree an effect of moonlight.



CHAPTER XXI

A HOME MOVING-PICTURE SHOW

The fun of the little moving-picture show commences the minute you begin to work upon it, and it lasts as long as you want it to, because there are always new pictures to plan and make.

The very first thing to prepare is

The Support for the Picture Screen, for which you will need a box. Almost any kind of a grocery-box, approximately 18 inches wide and 2 feet long, will do. Remove one of the bottom boards of the box (Fig. 356), for a doorway. Then cut a piece of cardboard long enough to reach across the top of the box from side to side, (*A*, Fig. 357), cut an oblong opening in its center, as shown in Fig. 357, and tack to the box edges in the position shown in Fig. 361.

The upper and lower boards *B* support the picture rollers *D* (Fig. 361). Make them about 12 inches longer than the width of the box, and with a saw cut a 1-inch square notch in opposite corners, as shown in Figs. 358 and 362. These notches form pockets for the picture-roller ends to turn in and the strips *C* (Fig. 358), nailed to the edges of the board, hold the rollers in the notches. Nail boards *B* to the two ends

of the box, with the front edges projecting about an inch beyond the front edges of the box, and with the pair of roller pockets in the upper board directly over the pair in the lower board.

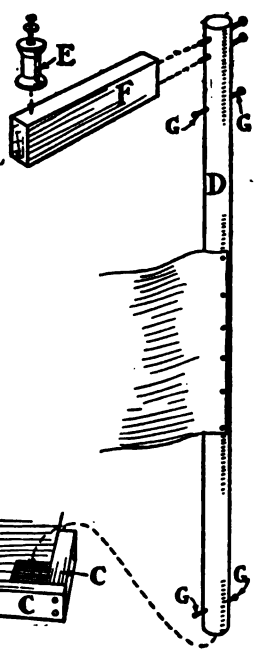
Broom-handles, curtain-poles, or any other round wooden sticks that you can find will serve for

The Picture Rollers (*D*). Cut them of the right length so that their tops will extend several inches above the top board *B* when they are placed in their pockets (Fig. 361). A diagram of a roller is shown in Fig. 359, and a detail of the crank for turning it is shown in Fig. 360. For the crank (Fig. 360) fasten a thread spool, (*E*) to the end of short stick (*F*), and then nail the upper end of the roller to the end of the

FIG. 357



FIG. 360



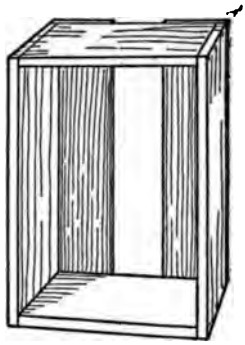


FIG. 356

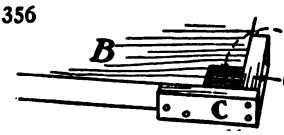


FIG. 358

FIG. 359

FIGS. 356 and 357. — Details of Support for Picture Screen

FIGS. 358 to 360. — Details of Picture-Roller

stick. The nails *G*, Fig. 359 are driven into the roller, after the roller ends have been slipped into their pockets. Their purpose is to keep the rollers from moving up and down, Fig. 361.

The Picture Strips are made of white cloth and are cut about an inch wider than the oblong opening in the piece of cardboard *A*. To these strips the pictures are pasted. Enough of the strips should be sewed end to end to make a continuous strip at least 20 feet in length.

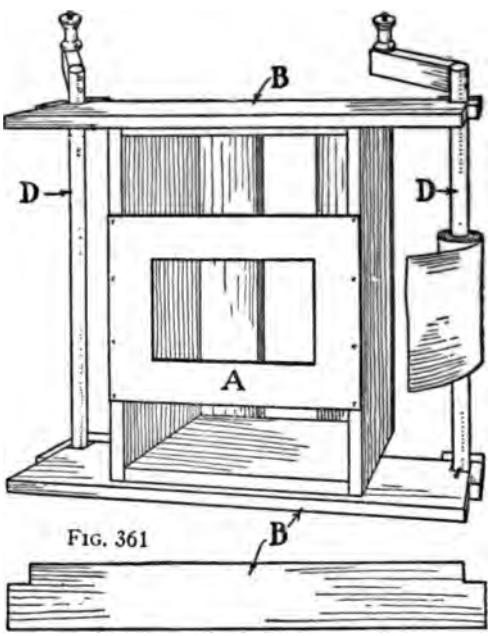


FIG. 361

FIG. 362

FIG. 361. — The Completed Framework
FIG. 362. — Supports for Picture-Rollers

Select Pictures from Newspapers and Magazines. Color them with crayons or water-colors, and arrange them upon the cloth strips in some interesting order. Fasten them with flour paste. Tack each end of the picture strip to a picture-roller, passing the cloth over the front of the opening in the piece of cardboard *A*.

To Complete the Picture Theatre there remains now only the enclosing of the front of the framework so the audience cannot see you operating the roller cranks. This is done with cloth (Fig. 363). Get a piece large enough to reach from the upper board *B* to lower board *B*, and from end to end, and tack it to the two edges of these boards, stretching it tightly. Then

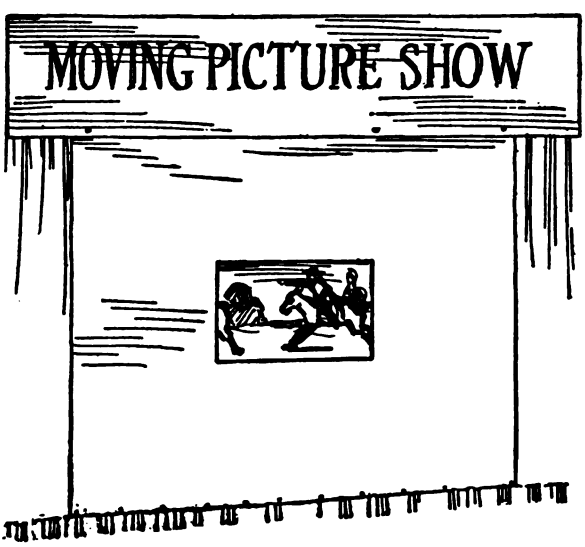


FIG. 363.— The Moving Picture Screen as Viewed by the Audience

cut an opening in the center exactly in front of the opening in the piece of cardboard *A*. A board nailed across the top of the framework will conceal the cranks, and will provide a good sign board on which to letter the words "Moving-Picture Show". A sheet hung



from each end of this board, and a piece of cloth draped over the front of the table on which the framework is placed, will complete the concealment.

Reel the Pictures from One Roller onto the Other, then back again, by turning first one crank and then the other. A light placed inside of the box will illuminate the pictures from behind.



CHAPTER XXII

A HOME-MADE TELEPHONE

THIS is not the kind of telephone the boys use. No indeed, that kind costs lots of money to make, and it would be no better as a play telephone than the simple one I shall describe and illustrate for you in this chapter. This telephone outfit will not carry a message a long distance, 'tis true, but it will work splendidly from one room to another, or from your house to the house next door, and that is plenty far enough for play telephoning.

There must be two telephones, of course, one for your chum and one for yourself.

The Telephone Instruments are very simple to construct. Each is made out of a tin can, and you talk into and listen through the same tin can. Figure 364 shows a girl talking, and Fig. 365 shows a girl listening.

How to Prepare the Tin-can Instruments. A pound corn can, or a can of equal size, should be obtained for each instrument. A tomato-can will do, but it is rather large and awkward to hold, and therefore will not serve the purpose as well. If you will examine the ends of a preserve can, you will discover that one end

is smooth and the other end is not. The smooth end is the bottom, and the other end or top has a hole cut in its center and a piece of tin soldered over that hole. This end of the can, with the center-piece of tin removed, forms a splendid mouthpiece for our telephone



FIG. 364.— Talking at one End of the Line

(Fig. 369). The center-piece of tin is easily removed. All you have to do is place the can, with this end down, in the flame of a gas-burner for an instant, to melt the solder, and the piece will drop out (Fig. 366). Hold the can on the end of a large kitchen spoon, then you

will not burn your fingers. The ragged edges of the "opened" end of the can should also be removed, and the easiest way to do this is by holding the can in the flame of a gas-burner until the solder which holds the end in place has melted, when a few taps upon the



FIG. 365. — Receiving at the Other End of the Line

edges, with a kitchen spoon, will cause the cut end to drop off (Fig. 367).

The end of the can having the full opening must be covered with paper. A piece of the tough brown paper now so generally used for wrapping-paper is good enough covering material. Dampen the paper, then stretch a piece of it over the end of the can, bring

the edges down over the side of the can, and bind them securely with half a dozen or so turns of thread (Fig. 368). When the paper has dried, it should be tight as a drum-head.

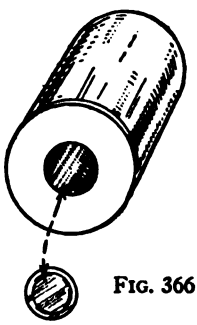


FIG. 366



FIG. 367

FIGS. 366 and 367.— How the Tin-Can Telephone Instruments are Made

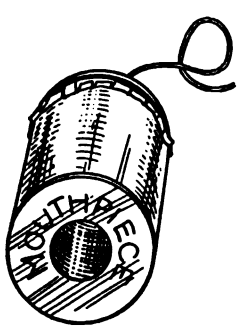


FIG. 369



FIG. 368

FIGS. 368 and 369.— End View of the Complete Telephone Instrument

Heavy linen thread should be used for

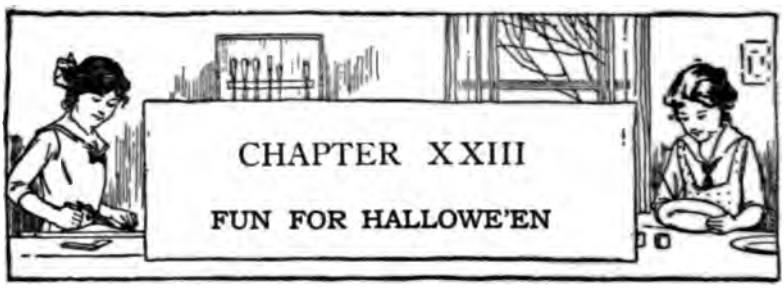
The Telephone Wire. Carefully pierce a hole through the exact center of the drum end of each instrument, with a pin, slip an end of the thread through this hole, and make a knot large enough so that it will not pull out. Pull the knot close up against the inside of the drum.

Figure 364 shows how the telephone wire is fastened to the chair-back with a short piece of string. Wherever you make a turn, the thread must be kept from

touching any object by supporting it in a similar manner. The thread must be stretched tight while the telephones are being used, and the instruments must be held so the knotted end of the cord pulls against the inside face of the paper drum. Be careful not to pull hard enough to make the knot tear the paper.

An Excellent Telephone Booth can be made of a chair, as you will see by looking at Figs. 364 and 365. The chair can be enclosed on all sides and the top, if you wish

To Make It Like a Real Telephone Booth. Fasten a side stick to each side of the chair, binding its lower end to the front leg with string, then extend a sheet or other piece of cloth from these sticks to the chair back and across it, and fasten a piece over the top. Another piece of cloth, fastened to the edge of the top covering, to drop down over the back, will complete the booth.



CHAPTER XXIII

FUN FOR HALLOWE'EN

A HALLOWE'EN party, if it be ever so small an affair, requires previous preparation to make it a success, and the planning and making ready will furnish several days of good fun. Get your chum to help, but do not let the other girls into your plans because these should be kept a secret. Send every girl

An Invitation, long enough ahead of time so that no other party engagement will be made for this evening. The invitation should be in verse, and following are two suggestions, either one of which you may use:

On Hallowe'en, if you'll attend
A ghostly frolic at my home,
You'll learn what fate is yours, dear friend,
When goblins sly and spirits roam.
8: 30 o'clock.

Come Hallowe'en to my home and see
What signs portend your destiny,
And with the aid of magic know
What life may hold of weal or woe.
I'll greet you at the garden gate
In mystic garb, at half past-eight.



FIG. 371.—WITCH HAZEL

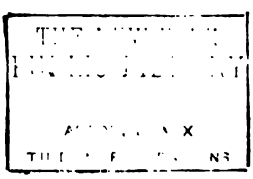


FIG. 370.—JACK PUMPKINHEAD



FIG. 372—MAKE NO TWO OF YOUR PUMPKIN-HEAD LANTERNS ALIKE





Then, having sent the invitations, do not fail to drop a hint now and then as to what strange things are to be revealed. That will make everybody curious, and all will arrive at your home at the appointed hour, anticipating an evening of thrills.

Either you or your chum, dressed as

Jack Pumpkinhead Should Meet the Guests at the door, and lead the way to the rooms in which wraps are to be laid off. Jack is a most awe-inspiring usher, as well you can imagine by a glance at his portrait in Fig. 370, which shows him arrayed for a Hallowe'en frolic.

A Pumpkin Jack-o'-Lantern Forms the Head, and this may be prepared like any one of the three forms shown in Fig. 372. The large teeth of the head at the left, the colored paper backing of the eyes, nose, and mouth of the center head, and the turban upon the head at the right, greatly change the features, and by studying these photographs you will discover how widely different the facial expressions may be made simply by cutting the openings of different shapes. When preparing your lanterns for Hallowe'en, try to vary them so no two will look alike.

Jack's pumpkin head must be supported upon your head by means of

The Framework shown in Fig. 374. Shelf *A* is nailed to bracket piece *B*, and hand-stick C is nailed to both *A* and *B*. Nail the pumpkin to shelf *A*; then reinforce the fastening with cord run through the

pumpkin from side to side. To steady the jack-o'-lantern upon your head, grasp the stick *C* with the left hand.

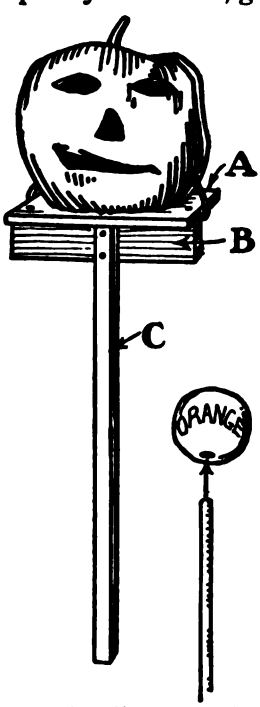


FIG. 374 FIG. 375

FIG. 374. — Framework for Supporting Jack Pumpkinhead's Head

FIG. 375.— Detail of Staff

Jack's Blouse is of red cheese-cloth, with a fold provided as a sleeve for the right arm;

Buttons are made of the rinds of halves of oranges, and these are sewed to the cheese-cloth with heavy linen thread; and

A Pleated Collar is made out of white paper or cambric.

The Staff is a broom-handle. Wrap it with red cheese-cloth, and push a hollowed orange jack-o'-lantern over the end of the staff for a head (Fig. 375). Tie a bow of ribbon beneath the head for a necktie.

In the room where wraps are to be left, station

A Ghost. This may be a dummy ghost, made as shown in Figs. 376 to 378. Bind the handle of a broom to a chair-back with cord, turning the broom portion up for

The Head (Fig. 377). Fasten a false-face to the side of the broom for the ghost's face, or make a face out of white paper, marking eyes, nose, and mouth upon it with black paint or ink. To complete

The Body Framework, tie a 3-foot stick at its center to the broom-handle just below the broom head, for arms, and brace the ends of this stick with cords extended down to the chair back, as shown.

For the Ghost's Gown, drape a sheet around the chair, drawing this close up to the head, and fastening it at the top to the broom straw. Then hang a pillow-case, or other white cloth, over the cross-piece ends for sleeves (Fig. 376).



FIG. 376. — A Ghost

Make the Hood out of a pillow-case, folding this into the form shown in Fig. 378, with a peak at the top, and the front turned up.

The Witch shown in Fig. 371, whom you may call

Witch Hazel, may also stand guard in the dressing-room. She is built upon a dressmaker's form. Her head is a pumpkin jack-o'-lantern, fitted over the top of the form. The photograph suggests how to dress her in a cape and gown, and a peaked hat.



FIG. 378

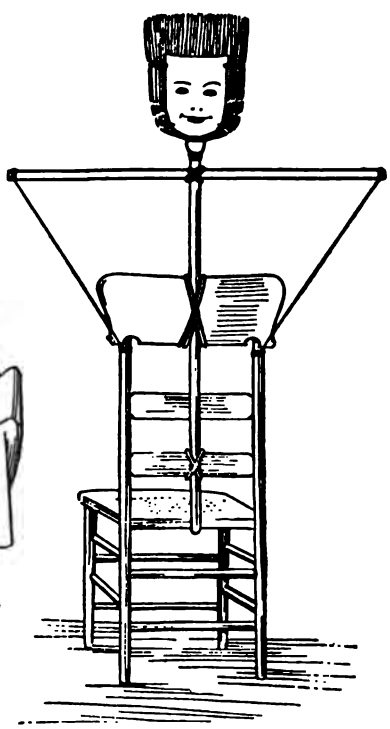


FIG. 377

FIG. 377.— Framework for Ghost
FIG. 378.— The Pillow-Case Hood

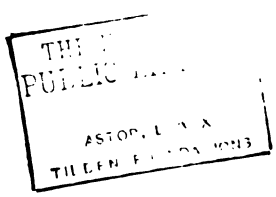
There must be **A Witch to Tell Fortunes,** in addition to Witch Hazel, and a good outfit for her is a gray dressing-gown and cape, a peaked hat, a pair of spectacles, and a broom.

Figure 373 suggests a good plan for **The Witch's Wigwam.** A Christmas-tree standard with a clothes-pole fastened in it, supported this; and sheets were used for the covering material.



FIG. 373.—THE WITCH'S WIGWAM, CALDRON, AND MAKE-BELIEVE FIRE




THE
PUBLIC
ASTOR
TILDEN

Corn-stalks at either side, a tripod supporting a cauldron over a make-believe fire, and a harvest moon upon a cloth background supplied the proper setting, all of which are easily arranged.

The Make-believe Fire is prepared by placing the bulb of an electric drop-cord beneath a few sticks, with a piece of red tissue-paper covering the lamp, and the way

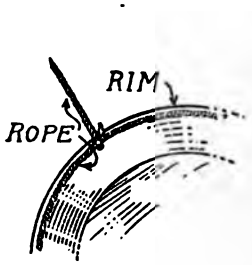


FIG. 380

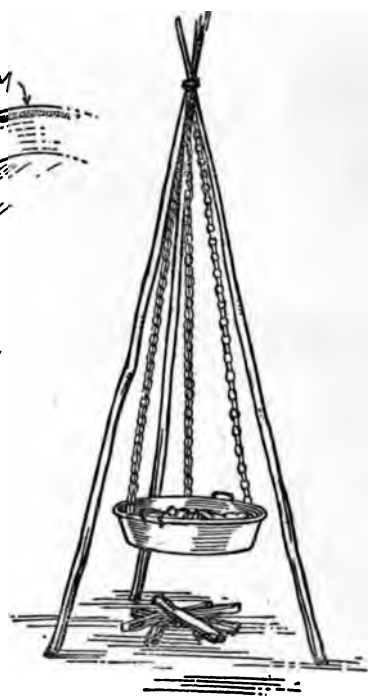


FIG. 379

FIG. 379.—The Witch's Cauldron
FIG. 380.—How to Hang a Dish-pan for a Cauldron

To Produce a Moonlight Effect is by placing another electric-lamp back of the moon. Let the room be lighted entirely by "moonlight" and "firelight".

Figure 379 suggests a scheme for

The Witch's Cauldron, a use for which I shall give

suggestions later. A large black kettle is best, but if you cannot get one, take a dish-pan, tie a rope around its outside just below the rim, as shown in Fig. 380, and to this rope attach three ropes or chains at equal distances apart by which to suspend the pan. Mop handles, a rake or hoe-handle, and clothes-poles may be used for the sticks of the tripod. Cross the upper ends and tie them, as shown.

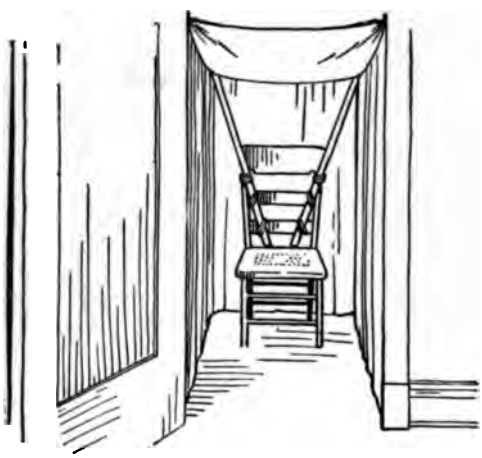


FIG. 381.— The Witch's Cavern



FIG. 383.— The Front, Showing Door Closed

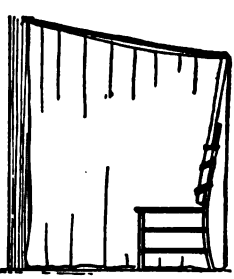


FIG. 382.— Inside of the Cavern

Perhaps you will prefer

A Witch's Cavern, built in a doorway like the one shown in Fig. 381, instead of the wigwam. This is easily built. Place a chair several feet back of the doorway, and bind two sticks to the chair-back in such a way that their tops will extend 6 inches

or so beyond the sides and about 18 inches above the back (Fig. 381). Then run a piece of clothesline across the tops of the sticks and over to nails in the door-jambs (Fig. 382), and over these ropes hang sheets to enclose the sides and roof of the cavern. The door may be closed each time a guest is admitted, but place a light within that will be sufficient to light the cavern dimly. Placard the door of the cavern as indicated in Fig. 383.

Now, with Jack Pumpkinhead, the ghost, and the witches, and a witch's wigwam or cavern provided for, let us arrange for

Stunts for the Evening's Entertainment. Bobbing for apples, doughnut-eating contests, ghost-story telling and a host of other old-time diversions will probably always be popular for Hallowe'en. New ideas are devised from time to time, but usually ancient games and rites are the basis for them, and often with a little rearrangement you do not recognize an idea that is really very, very old. Some of the ideas presented upon the following pages are new, while others are old ones in new dress.

Did you ever hear of this method of

Fortune-telling? The guests are sent one at a time to the witch's wigwam (Fig. 373) or cavern (Fig. 383). There the witch hands them a mirror, which after being breathed upon, tells what the future holds forth for them.

This is how the trick is done. The witch writes the fortune upon the mirror with French chalk, then

rubs it off with a handkerchief so that no trace of the writing can be seen. After this, when the mirror is breathed upon, the moisture makes the writing visible.

Another Idea for Fortune-telling is to have the guests seat themselves upon the floor, forming a circle around the cauldron, while the witch stirs the brew out of which she declares the fortunes are about to come. As she stirs the brew, the witch should talk continuously, but incoherently, and with a mumbling of her words so that no one gets any idea of what she is saying.

The contents of the cauldron should be walnuts that have had their kernels removed and replaced with slips of paper, then the shells glued together again. On the pieces of paper should be written directions as to where the guests will find a card foretelling their fortunes, such for example, as: "Behind the mantel clock"; "Back of the hall radiator"; "In the fireplace"; "Under the corner of the living-room rug".

After the witch has stirred the potion for a while, she should pass the nuts around. Then begins the cracking open of the nuts, and the reading of instructions upon the papers within, followed by the merry race to the hiding-places of the fortune-cards.

There are all sorts of

Other Ways of Telling Fortunes. Here are a few suggestions for witty prophecies, and you can match your wit in patterning others after them: "I see many good things in store for you — the grocery store!"

"You are going to make a journey — when you go home to-night!" "You will lose something priceless, then find it — your breath, I think!" "Young man, you will soon be earning fifty dollars per — perhaps!" "You take after your mother — sometimes, she takes after you!" "There is a bright outlook for you —look out!"

A good way of telling fortunes without the witch, is by means of **The Twirling Pumpkin** method shown in Fig. 384. The fortunes should be written in ink upon the sides of the pumpkin, and the pumpkin suspended in a doorway by means of a cord tied to its stem. Then the girls and boys are given a hat-pin, in turn, and after the pumpkin



FIG. 384. — Pumpkin for Fortune-Telling

has been started whirling, they pick out their fortunes by jabbing the hat-pin into the pumpkin.

You must not overlook

Ghost-story Telling. To give the proper setting for this, the room should be lighted by the burning

FIG. 385





FIG. 386

FIG. 385. — Enlarge this Sketch upon a Sheet for the Game of Pinning the Tail upon the Witch's Cat

FIG. 386. — The Rope Cat's Tail

of salt and alcohol, in a dish, which produces a weird light that gives everybody and everything about it a ghastly appearance.

Pinning the Tail Upon the Witch's Cat is lots of fun. Upon a sheet or large piece of wrapping-paper, make a drawing of a witch astride of her broom, with her cat

seated behind her. Figure 385 shows a sketch for this, and you can enlarge it by the process of enlarging by squares described in Chapter 13 (Figs. 270 and 271). Use black crayon or charcoal for drawing the picture.

Prepare the Tails from short pieces of clothes-line, with a small safety-pin sewed to one end, as shown in Fig. 386, and provide as many tails as there are guests. Dye the tails black to match the color of the cat.

Blindfold the guests, one at a time, turn them about once or twice, and start them off in the direction of the cat, with instructions to pin the tail upon the cat. There should be a prize, of course, for the boy or girl who pins the tail nearest the right position for it, and a booby prize for the one who pins the tail farthest from the right place; and in addition to the prizes, allow everybody to carry home a tail for a souvenir.

A new way of arranging

A Doughnut-eating Contest is to give different lengths to the strings by which the doughnuts are suspended; then select the lowest-hung doughnuts for the tall boys and girls to eat, and the highest-hung doughnuts for the short boys and girls to eat. This makes the contest more difficult and more exciting, and the sight of the tall guests attempting to eat while bent nearly double, and the short guests striving equally hard while standing upon tiptoes, presents a ludicrous sight for those looking on.

When all is ready for

Choosing Partners for Supper, give each boy a card with a name written upon it with

Invisible Ink, made of baking soda and water. The cards will appear blank when distributed, because the writing will not be visible. When the cards have been distributed, direct each boy to pass his card over the flame of a lighted candle which you have placed upon a table. When held over the flame for a few seconds, the writing will appear in brown, and the partner's name will thus be revealed.



FIG. 388



FIG. 387



FIG. 390



FIG. 389

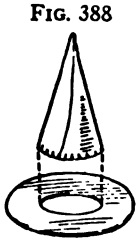


FIG. 391

FIGS. 387 to 389.— How to Make Goblin Table Favors

FIGS. 390 and 391.— How to Make Witch Table Favors

Figures 387 and 390 show **Appropriate Table Favors.** The head of the goblin (Fig. 387)

is an orange hollowed out jack-o'-lantern fashion, and a small bottle forms the body. Figure 388 indicates how the head should be fastened to the bottle by means of a cork (*A*) pushed down through a hole in the orange, into the neck of the bottle. Make a collar of white paper, a gown of colored tissue-paper, and a paper cap like that shown in Fig. 389.

Make the witch favor, shown in Fig. 390, in the same way the goblin is made, but with an apple head. Figure 391 shows a detail of the witch's peaked hat, which is made of paper.



CHAPTER XXIV

A HANDICRAFT BOOTH FOR A FAIR

HERE is a plan for a booth which a class of you girls can make one of the most attractive and best-patronized features of your church or neighborhood fair. Your own handicraft can be placed on sale here, and you can build the booth itself by following the plan I have worked out and shown in Fig. 392, because it requires simple carpentry. When all is in readiness you can advertise "The Handicraft Booth, Built, Stocked, and Attended by the Girls of Class No.—."

Figure 393 shows

How to Construct the Booth. You will need a grocery-box about 30 inches long, 14 inches wide, and 10 inches deep for each of the four corners. Each of these boxes must be provided with legs fastened inside at the corners (*A*, Figs. 395 and 396). These legs should measure 2 inches thick, 4 inches wide, and 26 inches long. They must be of equal length so as to stand evenly upon the floor, and they must be securely nailed to the sides of the box. The supports for the canopy are made of clothes-poles, or strips of this thickness, about 7 feet long. The strips can be pro-

cured from a carpenter. Nail one to a corner of each of the four boxes (*B*, Fig. 396).

The proper distance at which to place the box-supports will be determined of course by the size that

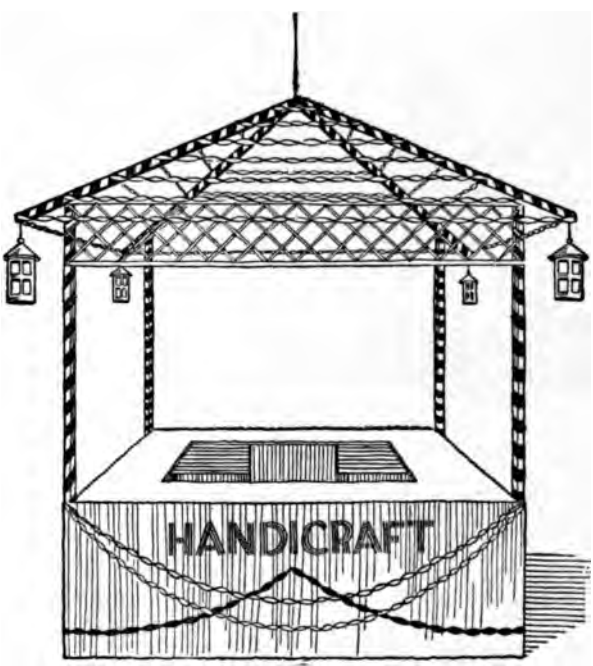


FIG. 392. — The Completed Booth

you want to make the booth. Seven feet square, outside measurement, is a good size.

The Counter Boards should be 12 inches wide, and long enough to make a continuous counter extending from corner to corner. This is not shown in Fig. 393,

but is indicated in the plan diagram of Fig. 394. You will see that there are two long counter boards, and that two shorter boards fit between them. Nail the

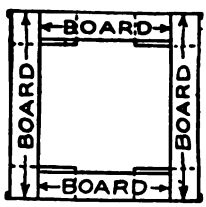


FIG. 394

FIG. 393

FIG. 393. — Framework for Booth
FIG. 394. — Plan of Framework, Showing Counter-top in Place

boards securely to the boxes, after being careful to see that the boxes are placed so as to form a square.

The Canopy Framework is made of four poles (*C*, Fig. 393). The lower ends of these are secured to the tops of uprights *B*, and the upper ends are suspended from a screw-eye screwed into the ceiling directly over the center of the booth. These poles must project 6 inches or so over the tops of uprights *B*, and must be long enough to run up to a peak at the center. By screwing a screw-eye into the top of uprights *B*, and one into the under side of poles *C* (Fig. 396), the poles can be joined by tying together the screw-eyes with cord. Screw a screw-eye into the upper end of poles *C* to tie the cord to for suspending the poles from the ceiling screw-eye.

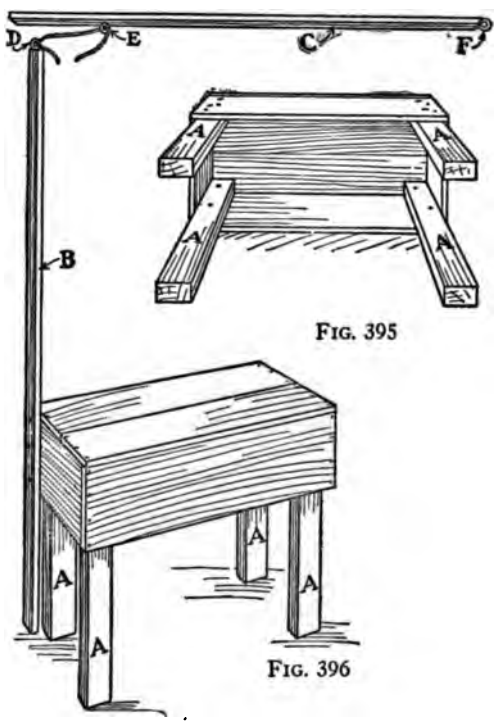


FIG. 395

FIG. 396

FIGS. 395 and 396.— Details of the Corner Supports and Canopy Framework

For Covering the Framework, you will find crêpe-paper the best material. Figure 392 suggests how strips of the paper may be wound around the corner uprights and canopy poles, how a lattice-work frieze of twisted crêpe-paper may be extended around the sides of the top, and how ribbons of crêpe-paper may be used to enclose the canopy framework. Pretty home-made

Cardboard Lanterns, hung from the projecting ends of the canopy poles, will add a finishing touch to the roof. You will get a good idea of how to make these lanterns from Fig. 392. Bend a piece of cardboard into a cylinder, for the sides of the lantern, cut two rows of square openings through this as shown, and paste colored tissue-paper inside, over the openings. Fasten a circular piece of cardboard to the bottom of the cylinder for the base of the lantern, and fasten to the top a piece that has been cut and shaped into a conical roof.

Cover the Counter boards with heavy wrapping-paper, and tack this paper in place, then cover the paper with cheese-cloth of a color that will harmonize with the tissue-paper trimmings. An apron of cheese-cloth must be tacked to the sides of the counter, and a pretty effect will be obtained by pleating this as indicated in Fig. 392. One side of the apron must be made to part, to provide an entrance into the booth.

Figure 392 suggests how to decorate the counter apron with ribbons of twisted crêpe-paper.



CHAPTER XXV

A JAPANESE GARDEN

Do you own a Japanese garden? If not, you should get one because it is one of the latest fads to have one. A garden can be purchased ready planted, but it is more fun to plant one yourself.

You Need a Shallow Bake-pan in which to plant the garden. This may be round or square. For soil you must have sand, and you must also have some coarse pebbles or pieces of broken stone. These can be had for the asking some place where a building is in course of construction. Half a panful of sand and several handfuls of pebbles will be enough. In addition, you must buy bird-seed or Japanese grass-seed to plant in the soil. The rest of the garden material can be picked up at home.

A Number of Arrangements for the garden can be worked out, and you can replant your garden from time to time to make it different. Figure 397 shows

A Good Plan to follow for your first garden. Pile up the sand around the sides of the pan, forming hills and hollows, and for

A Pond leave an irregular-shaped space in the center, extending it over to one side of the pan. Make a shore

line of pebbles around the pond, and scatter other pebbles here and there over the sand.

Plant Japanese Grass-seed, or bird seed, in the sand, then sprinkle it with water, and fill the pond.

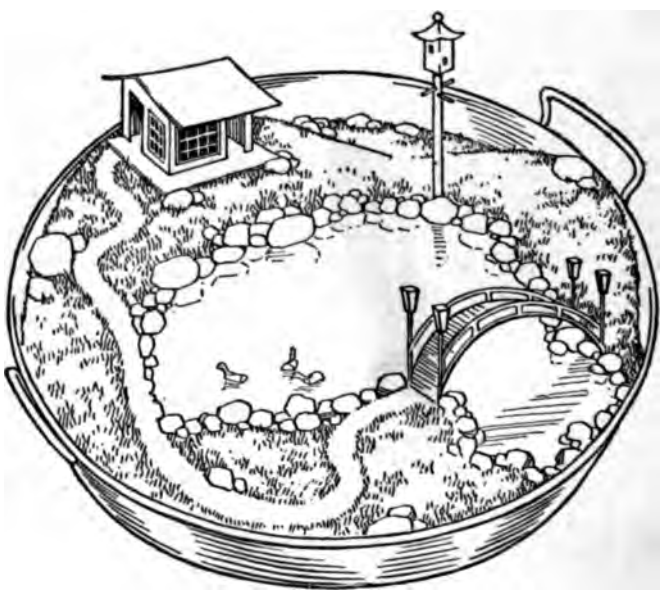


FIG. 397. — The Japanese Garden

Paths and roadways should be provided for, but these can be weeded out after the seed has sprouted.

One of the hills must be selected as a site for

A Japanese House. This house may be made of cardboard. Figure 398 shows patterns for the walls. The dotted lines indicate where the pieces are to be folded. The strips outside of the dotted lines are to

be turned in and pasted to adjoining surfaces, in fastening together the walls, foundation and roof. Fasten the walls upon a cardboard foundation (Fig. 397), and glue another piece to their tops for the roof.

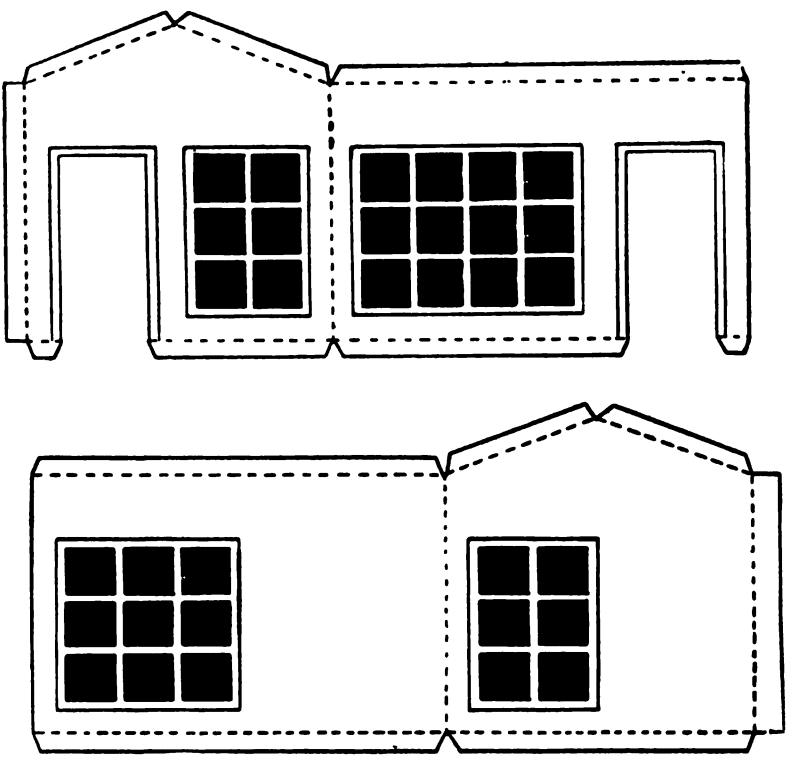


FIG. 398. — Patterns for Walls of Japanese House

A Japanese Bridge must be built over a narrow portion of the pond, as shown in Fig. 397. Make the arched roadway of this bridge out of a piece of a peach-

basket handle (Fig. 399), with a cardboard railing (Fig. 400) tacked to each edge. The arch of the handle will determine the curve of the railings.

The Lamps at each end of the bridge (Figs. 397 and 401) have four sides and a bottom, cut in one piece like the pattern shown in Fig. 402. Cut an opening in each side as indicated, and punch a hole through the bottom for the supporting post to fit in. Fold on the dotted lines, and paste the turned in edges together. Use short sticks for posts (meat-skewers will do nicely), and fasten the posts to the bridge railings.

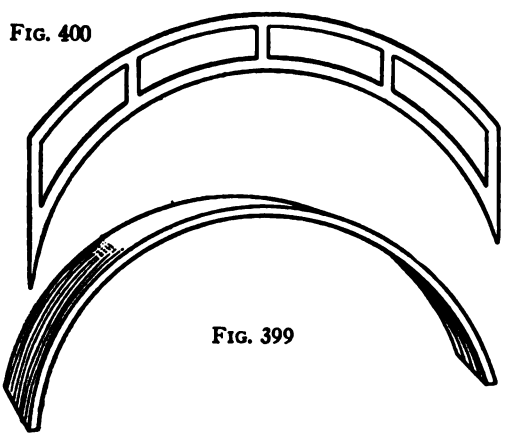


FIG. 399. — Roadbed of Japanese Bridge
FIG. 400. — Railing for Bridge

There should be

A Bird-house similar to that shown in Fig. 397. Cut and fold the sides in the same manner that you did those of the lamps. Make the roof out of a square of paper (Fig. 403), fold the paper from corner to corner as indicated by dotted lines, and pinch up the corners as in Fig. 404. The round end of a hat-pin

forms the ball at the peak of the roof, and the pin extends down through the house and is wrapped with paper, to form the supporting post.



FIG. 401

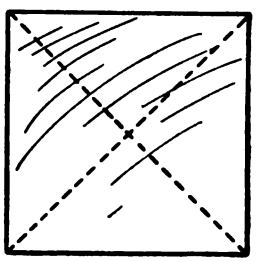


FIG. 403



FIG. 404

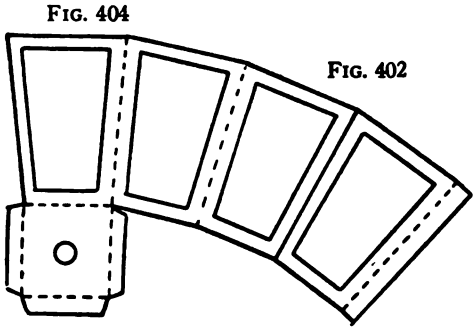


FIG. 402

FIG. 401. — A Bridge Lamp
FIG. 402. — Pattern for Lamp
FIG. 403 and 404. — Details of Roof for Bird-house

Ducks for the pond may be made as shown in Fig. 405. Use halves of corks for the bodies (Fig. 406),

and make the necks and heads out of cardboard, and fasten them in slots cut in the round side of the halved corks.

With these suggestions to show you how easily a garden can be built, you can

Devise Other Garden Accessories, by using a little ingenuity, and you will be surprised to find how much fun it is to start out with a simple garden such as I have shown, and develop it into an elaborate one.

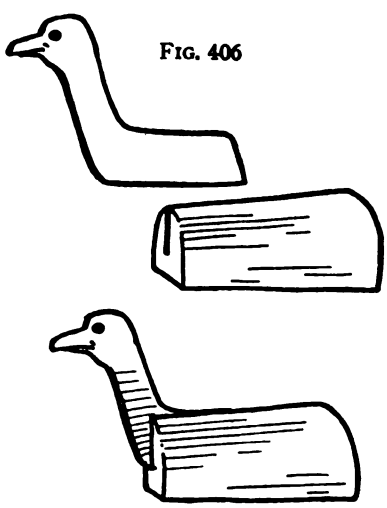


FIG. 406

FIG. 405

FIGS. 405 and 406. — Make Ducks for the Pond Like This



CHAPTER XXVI

HOLIDAY TABLE DECORATION

AFTER completing a Japanese garden like the one described in the preceding chapter, you will be interested in other forms of model-making, and especially in table center-pieces.

The Pilgrim's Homestead illustrated in Fig. 407 will make a splendid center-piece for Thanksgiving-Day either for mother's table or as a model for your school-room. If made for the table, the model should be small so as not to take up space that rightfully belongs to Mr. Gobbler and the good things that go with him.

The Cabin should be built first. If you can get straight pieces of tree branches, they will make the best-appearing logs; if not, paper logs will do. To make paper logs, it is only necessary to roll pieces of paper in tubes, using a pencil as a foundation to roll the paper on (Fig. 410), paste the edges to keep them from unrolling, remove the pencil, and pinch together the ends of the tubes.

The Cabin Walls should be built against the sides of a cardboard box, to give them stiffness. Use a small box, and cut down its sides enough to allow for cutting the gable ends, as shown in Fig. 408. Use the

same measurement on opposite sides so as to get them alike. Figure 409 shows the foundation for the stick chimney. This is one piece of cardboard folded. Cut away the upper portion of the sides of the piece as shown, so the chimney will be large at the base and small above. Glue to the end of the cabin.

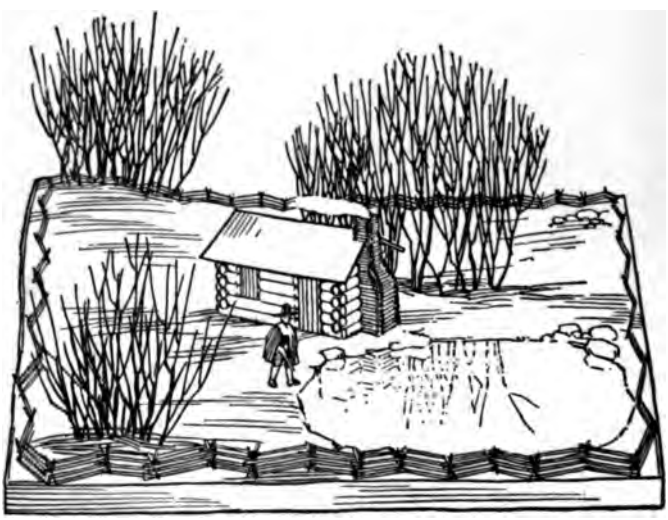


FIG. 407.— A Pilgrim's Homestead Center-Piece for the Thanksgiving-Day Table

The Door and Window Openings may be cut in the cardboard box, but it will save work simply to mark them out with pencil, and perhaps draw vertical lines to indicate the boards of the window shutters and door (Fig. 407).

To Lay up the Wall Logs, first place a side log along

each side and glue it to the cardboard box, then place a pair of end logs across their ends and glue them to the ends of the box, then a pair of side logs across the ends of the end logs, and so on until the walls are entirely built up. Cut the logs of the right lengths so their ends will project as shown, and cut them to fit between the openings, and, on the chimney end, to fit against the chimney.

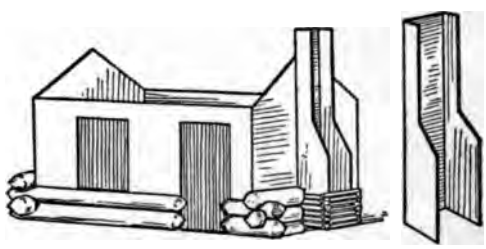


FIG. 408.— How to Build the Cabin Walls

FIG. 409.— The Chimney Framework

If you use paper logs, pinch them where they cross, so each tier will rest upon the tier below. If you use tree-branch logs, notch them near their ends so that they will fit down over one another.

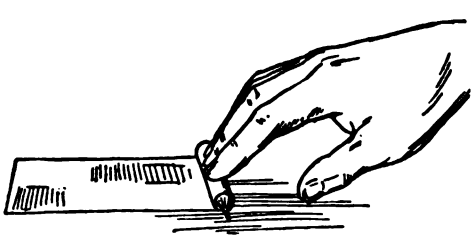


FIG. 410. — How to Roll up the Paper Logs

For the Stick Chimney, either small twigs, or paper tubes rolled over burnt matches, may be used. Cross the ends and glue them to the cardboard foundation in the same way that you fastened the cabin logs. Stick a piece of cotton in the chimney top to represent smoke.

Make the Roof of cardboard, with wide projections at the eaves and gables, and glue it to the edges of the cardboard walls. Paint the roof brown, and the logs, also, if you have used paper logs.

The cover to a cardboard box should be used for

A Foundation for the Homestead, and this should be filled with sand or earth to the depth of the rim, for ground. Locate the cabin in about the position shown in Fig. 407, place a mirror to one side of it for

A Pond, concealing the edges with earth or sand, and

Plant Several Clumps of Trees, using branches of shrubbery for them.

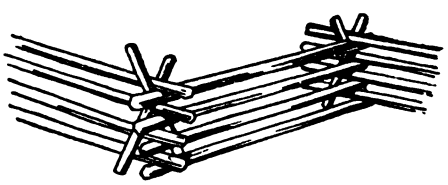


FIG. 411. — The Rail Fence

Figure 411 shows how

The Rail Fence that surrounds the model homestead is built. Use short, slender sticks or paper tubes for the rails.

To Add a Wintry Effect to the Scene, use flour, cornstarch, or "diamond dust" for snow. Scatter this over the ground, pond, and cabin roof in drifts and patches. The model will then be complete with the exception of

The Pilgrim Father. Figure 412 shows the Pilgrim with gun in hand. You need but make a tracing of the printed figure, transfer it upon cardboard, cut it out, paint it upon both sides, and stick the piece to which the feet are joined, into the ground.

The Santa Claus Castle shown in Fig. 413, will make a very attractive center-piece for the Christmas dinner-table.



FIG. 412. — Full-Size Pattern of Pilgrim Father

The Mountain upon which the castle stands is the first portion of this model to build, and for it you will need a large enough piece of cardboard to make a base about 16 inches in diameter and a top 9 or 10 inches in diameter (Fig. 414). The cardboard from a suit-box will do. After bending this into the proper shape, coat the overlapping edges with glue, and press together until the glue has set; then trim off the base to rest squarely, and the top edge so that it will be parallel with the base.

The Lower Portion of the Castle is a square cardboard box (Fig. 415). Invert this box, and around its bottom glue a strip of cardboard that has notches cut in one edge, as shown, for an embattled parapet wall.

The Lower Tower stands upon the box base. It is made of a piece of cardboard notched along the upper edge for battlements, and bent into a cylinder with the edges lapped and glued together (Fig. 416). Make a roof out of a circular piece of cardboard, with projecting tabs for turning down and gluing to the sides of the tower (Fig. 417).

Make the Upper Tower in the same way that you

made the lower one, but smaller, and fasten it upon the lower tower (Figs. 413 and 418).



FIG. 413.— A Santa Claus Castle Center-Piece for the Christmas-Day Table

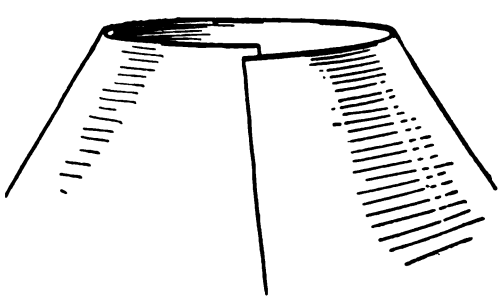


FIG. 414. — Cardboard Foundation for the Mountain

Paint Long Narrow Windows upon the castle walls, and fasten

A Stick Flag-pole upon the upper tower, to complete the castle.

The Mountain-side must be covered with snow, and the best way

To Obtain a Snow Effect is by gluing cotton to the cardboard. Put the cotton on in varying thicknesses, to give the slopes a rocky appearance.

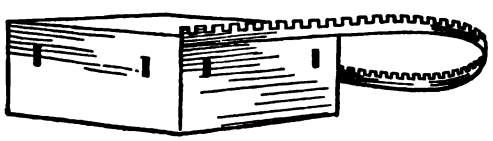


FIG. 415. — The Lower Portion of the Castle

Form a Trail up one side, from the base to the castle, by dampening and pressing down the cotton (Fig. 413).



FIG. 418

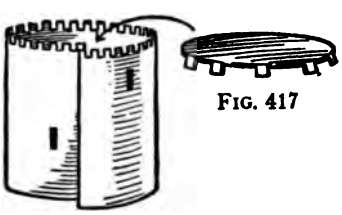


FIG. 417

FIG. 416

FIG. 416. — The Lower Tower
FIG. 417. — Roof for the Lower Tower
FIG. 418. — The Upper Tower

To Make the Snow Sparkle, sprinkle the cotton with "diamond dust," or flakes of mica sold for decorating Christmas-trees. Sprinkle this over the roofs of the castle, and over the trees.

There Must be Trees, and excellent trees may be made by cutting long slender wooden cones similar

to that shown in Fig. 419, driving a nail into the base of each, and then whittling the surface with a sharp knife so as to make the shavings stand out in the form of boughs.

The way to prepare the boughs is to start at the apex of the wooden cone, and whittle in the same way that you sharpen a pencil, but very carefully so that you do not split off any of the shavings. Whittle all sides of the cones, and work back from the apex to the base. Stain the trees a dark green. Then stand them erect upon the mountain sides, and stick the nails that are in their ends down through the cardboard. Pull the cotton up around their bases.

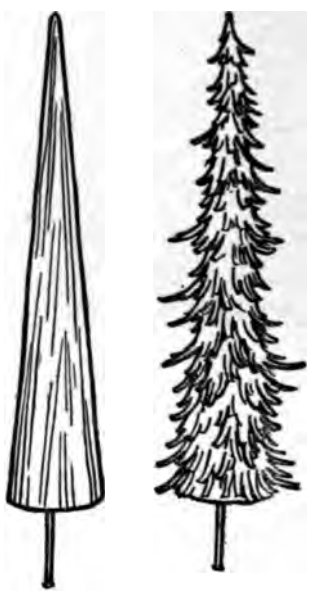


FIG. 419 FIG. 420

FIGS. 419 and 420.— How to Whittle the Trees

Santa Claus's Aeroplane should be shown about to alight at the castle (Fig. 413). Suspend it by a thread from a chandelier or a tack driven into the ceiling. The model consists of a strip of cardboard 7 inches long and 1 inch wide (*A*, Fig. 421), with a V-shaped piece glued to both sides of its center (*B*, Figs. 421 and 422), a tail plane (*C*, Figs. 421 and 423) glued to plane *A*,

and a propeller (*D*, Figs. 421 and 424) pivoted by a pin run through its center into the edge of plane *A* (Fig. 422).

FIG. 421

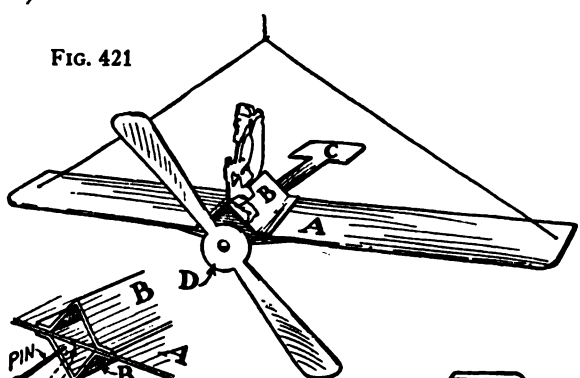


FIG. 422



FIG. 423



FIG. 424

FIG. 421. — Santa Claus and His Aeroplane
FIGS. 422 to 424. — Details of Aeroplane

Figure 425 shows

A Pattern for Santa Claus. This has been drawn of the right size for the aeroplane, so all you will have to do is trace it off upon tracing-paper and transfer it upon a piece of cardboard. Paint the clothes and toy pack with water-colors, then cut out along the outlines, fold along the dotted-line, and paste together the two halves with the exception of the feet which

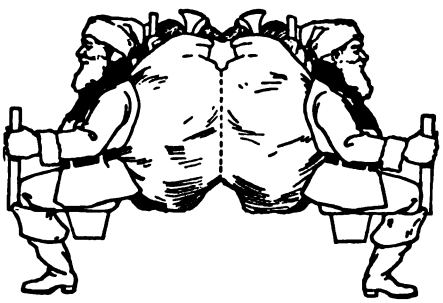


FIG. 425.— Full-size Pattern of Santa Claus and His Pack

must be separate to straddle the framework of the aeroplane.

The sweet dainties shown upon this and following pages are made of things good to eat, and will be unique decorations for a holiday table.

The Basket shown in Fig. 426 is prepared from an orange. First, make two parallel cuts through the rind ½ inch apart, and extending from the center of one side to the center of the opposite side. Then cut away the rind each side of this handle down to a line even with the start of the handle. Cut the orange pulp loose, and carefully scoop it out of the rind. Then cut little notches in the edge all around, and the basket will be ready to be filled with candies.

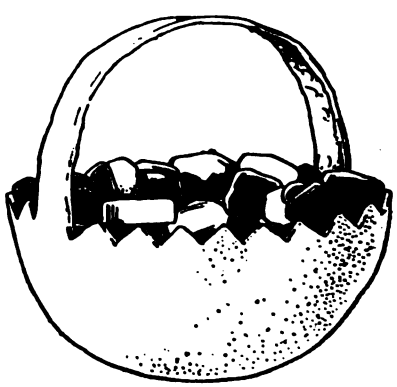


FIG. 426.— A Basket Made from an Orange

The Water Lily shown in Fig. 427 is also made from an orange. With a sharp knife slit down the rind into

strips and bend out these strips for petals. Then separate the orange into sections to form inside petals. This completes the lily.

The Cinnamon Bear (Fig. 428) has a nice fat fig for a body. Stick a toothpick in the end where his neck will come, and push a flat raisin on to this for a collar, pushing it up close to the body. Then select a well-shaped prune for the head, and stick it on to the end of the toothpick neck, and push down against the raisin collar. Make the legs of four toothpicks with a raisin pushed on to each next to the body, and a small currant next to the raisin. Break the top off a clove, and stick the remainder into the end of the fig for a tail.

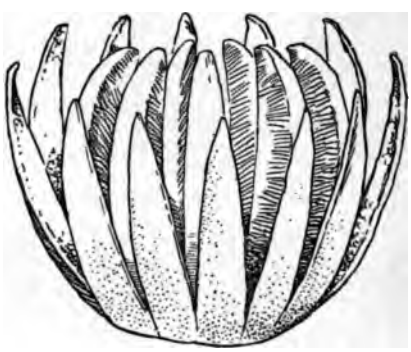


FIG. 427.— A Water Lily Made from an Orange

The Hound (Fig. 429) has a prune body, a raisin head, and small currant ears fastened to the raisin with pieces of toothpicks. The legs are short pieces of toothpicks with currants stuck on them. The tail is the stem of a clove.

The Turtle (Fig. 430) has a body and shell made of a large prune, and a raisin head joined to the body by means of a piece of toothpick. Stick cloves into the

sides of the body for legs, and a clove stem into the end for a tail.

Candy Jim (Fig. 431) has a fig body, a marshmallow

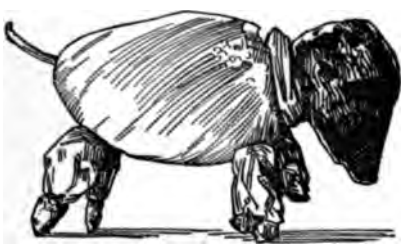


FIG. 428.— A Bear



FIG. 430.—A Turtle

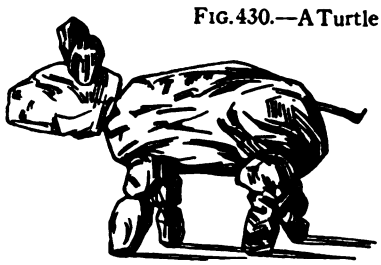


FIG. 429. — A Hound

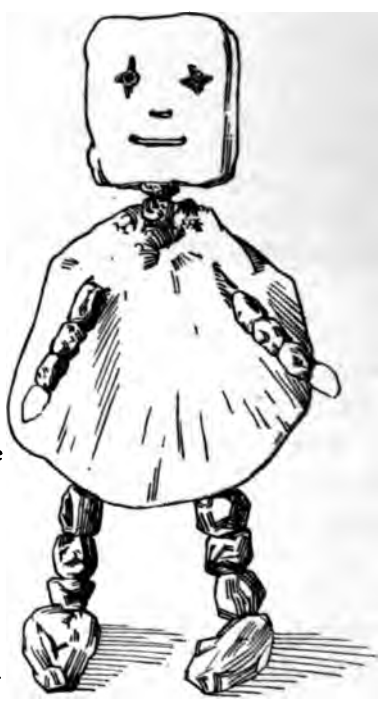


FIG. 431. — Candy Jim

head with clove eyes, and clove stem nose and mouth, each pressed into the soft marshmallow. The arms are toothpicks with currants pushed on them, and

the legs are two toothpicks with raisins stuck on them.

The little baskets shown in Figs. 432, 439 and 444 are splendid

Baskets for Candy Dainties for the dinner-table. Use heavy writing-paper for working material. If you can get tinted paper, the baskets will look daintier than if made of white paper.

The Eight-corner Basket shown in Fig. 432 requires a piece of paper 5 inches square (Fig. 433). Fold the piece of paper in half, with edges *A* together (Fig. 434), fold it in

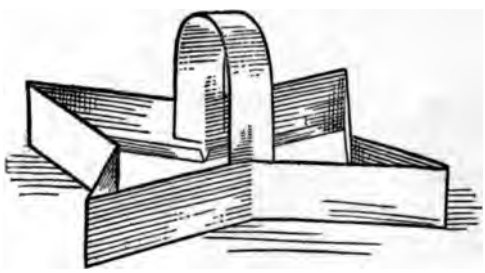
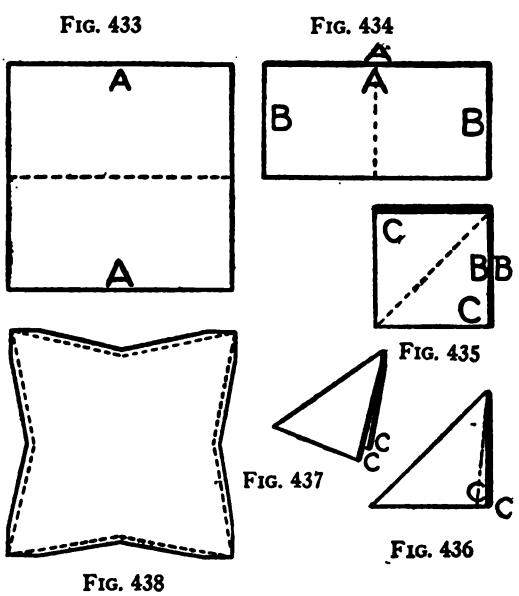


FIG. 432. — An Eight-Cornered Basket



FIGS. 433 to 438.—Details of Basket Shown in Fig. 432

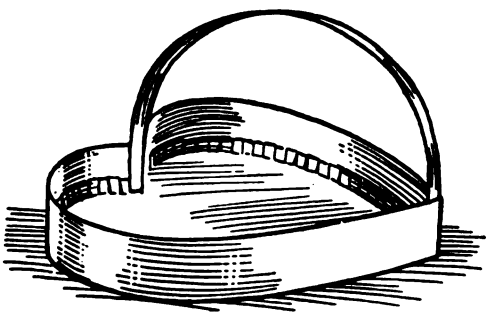


FIG. 439. — A Heart-Shaped Basket

FIG. 440

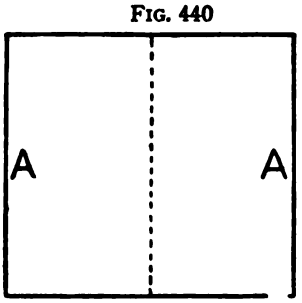
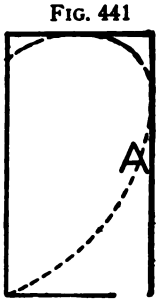


FIG. 441



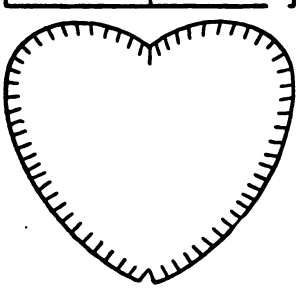


FIG. 443

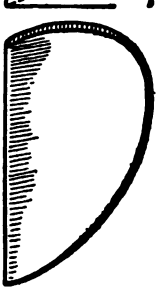


FIG. 442

FIGS. 440 to 442.— Details of Basket Shown in Fig. 439

half again with edges *B* together (Fig. 435), and fold corner *C* over to corner *C* (Fig. 436). Then with a pair of shears cut off corners *C*, as in Fig. 437. Unfold the paper, and it will have the form shown in Fig. 438. This is the basket bottom.

Turn up the edge of the basket bottom all around, folding along the dotted line shown in Fig. 438, and to this turned up edge paste a strip of paper 1¼ inches wide and 23 inches long, for the sides of the basket.

Bend this side strip so as to make it conform to the

shape of the basket bottom. The handle is a paper strip 8 inches long and ¾ inch wide, and its ends are pasted to the basket sides.

The Heart-shaped Basket (Fig. 439) has a bottom cut out of a piece of paper 5 inches by 5½ inches in size (Fig. 440). Fold the paper in half with edges *A* together (Fig. 441), then mark out one-half of a heart on one side of the folded piece, as indicated by the dotted line in Fig. 441, and cut out along the line (Fig. 442). Unfold the piece (Fig. 443), and slash the edge all around with a pair of scissors, making the slashes ¼ inch long. Turn up the little pieces between the slashes, and paste them to a strip of paper 1½ inches wide and 17½ inches long, bent around the heart-shaped bottom to form the sides of the basket (Fig. 439). The handle is made like that of the basket shown in Fig. 432.

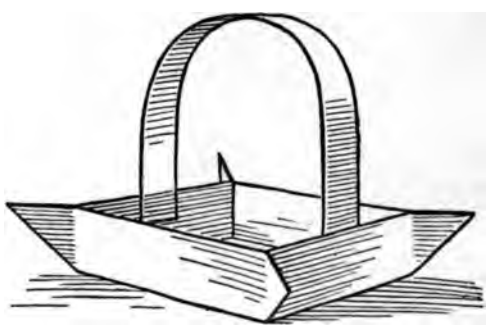


FIG 444. — A Basket with Pinched Corners

The Basket with Pinched Corners, shown in Fig. 444, is made from a square of paper that measures 5½ inches. Fold this square sheet in half, diagonally, with corners *A* together (Figs. 445 and 446), then fold it into quarters by bringing corners *B* together (Figs.

446 and 447), and fold over 1 inch of the edge of *C* as in Fig. 448. Open the piece of paper, and you will find a great many creases in it. The dotted lines in Fig. 449 show only the creases that are needed. Turn up the edges along the creases that run parallel to them. Then fold together and paste the overlapping corners, which will make them stand out as shown in Fig. 444. The handle is made of a strip 9 inches long and ¾ inch wide.

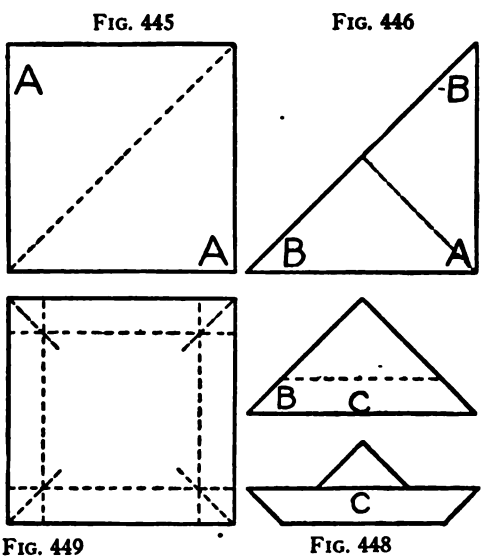
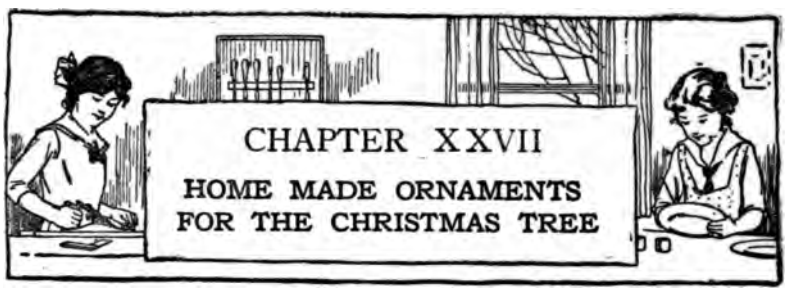


FIG. 445 FIG. 446

FIG. 449 FIG. 448

FIG. 445 to 449 — Details of Basket Shown in Fig. 444.



CHAPTER XXVII

HOME MADE ORNAMENTS FOR THE CHRISTMAS TREE

HAVE you ever helped to trim your Christmas-tree? If you have, you know that there nearly always are bare places upon the branches when you have finished, where you could have used more ornaments if you had had them.

Suppose that you prepare some home-made ornaments like those shown in illustrations in this chapter, to go with the ornaments which you have, for this year's tree. They will help to cover the tree, and not only that, they will also make your tree more interesting, because they will be different from anything that you can buy.

First of all, you must make

A Base for the Tree. This is one of the simplest things in the world to construct when you know how. You can probably pick up at home all of

The Material Required for the base, shown in Fig. 450, because this consists of a grocery-box, a few box boards, and some cloth for covering the wood.

An oblong box 10 inches deep, 22 inches wide, and 26 inches long was used for the base illustrated. Figure 451 shows the first step in the construction — the forming of

A Pocket to Receive the End of the Tree, in the bottom of the box. This is made with two pairs of boards nailed together crosswise as in Fig. 452. Any boards of narrow widths will do. Cut pair *A* exactly as long as the inside width of the box, and pair *B* exactly as long as the inside length of the box. For the end of a tree of medium size, the pocket should measure about 2½ inches square, and the strips should be placed this distance apart. If the pocket proves a bit too large, the tree end can be wrapped with a strip of cloth or paper to make it fit tight. If this is done, the pocket frame need not be fastened in the box.



FIG. 450. — A Base for the Christmas Tree

The lower pocket will hold the tree-end in position. To brace the upper part so as to prevent its toppling over,

Another Pocket must be made in the upper part of the box. This is formed by fastening one pair of narrow boards between the box sides even with the top edge (*C*, Fig. 453), then crossing

them with a pair nailed to the top of the box (*D*, Fig. 454).

The base can be completed by covering the box neatly with cloth, but it will be more attractive in appearance if you

Slant the Sides as they are slanted in Fig. 450. Nail a pair of boards to the bottom of the box (*E*, *E*, Fig. 455) so that they project beyond the sides and ends, as shown, and then nail strips *F* to the ends of these boards. The projections of the frame thus formed should be equal.

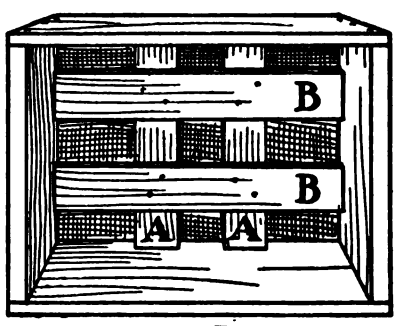


FIG. 451

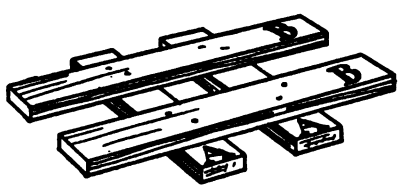


FIG. 452.
The BoxBase, Showing How the Lower Pocket for the Tree is Formed

Cover the Base with Cloth, bringing the material from the box top down over the edge of the bottom frame, and tacking it to the under side of the frame. Stretch the cloth evenly, bring it together at the corners, and sew the edges neatly. Now, let us see about the making of tree ornaments. As pretty

A Spear Ornament as you could wish for is shown in Fig. 456. This is made of a sheet of letter-

paper rolled into a slender cornucopia (Fig. 457), with a thread spool glued in the open end (Fig. 458), and a small silk spool slipped over the small end (Figs. 458 and 459); then all is covered with tin-foil, and a tassel made of pieces of red, white and blue paper, slashed into fringe (Fig. 460), is fastened in the apex. Tin-foil can be obtained from any florist.

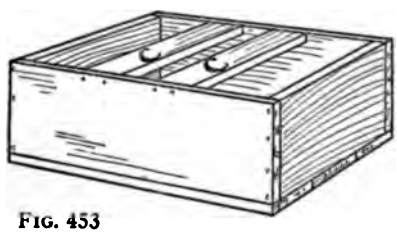


FIG. 453

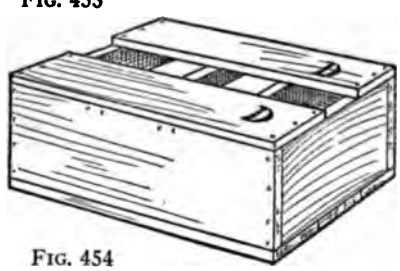


FIG. 454

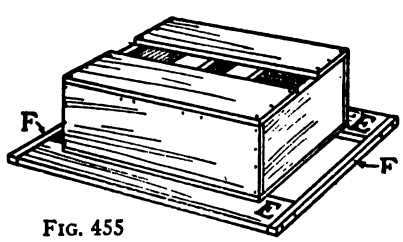


FIG. 455

FIGS. 453 to 455. — How the Upper Pocket is Formed, and How the Bottom of the Base is Extended

A Star Ornament, made after the fashion of that shown in Fig. 461, is a pretty tree-tip ornament, and it is easily made. The double star is prepared in two pieces cut from a cardboard box (Figs. 462 and 463). Mark them out alike with ruler and pencil, making the distance between opposite points 5 inches. Cut them with a knife or scissors.

The stars must be cut so one will fit over the other. Cut a slot in one from point *A* down to *B* (Fig. 462), which is one-half of the distance from *A* to *C*; and cut a slot in the other from point *C* up to *B* (Fig. 463). Then, by crossing the pair, and slipping the slot in each over the uncut portion of the other, the pieces will fit together in the form shown in Fig. 461.

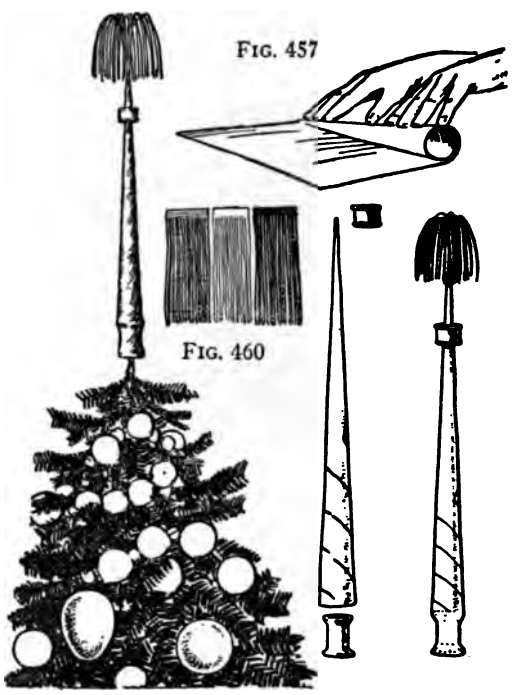


FIG. 456 FIG. 458 FIG. 459

FIG. 456. — A Spear Ornament for the Tip of the Tree

FIGS. 457 to 460. — Details of the Spear Ornament

Cut two slender sticks for the star stem, fasten the upper ends to opposite faces of the star, and bind together the lower ends with thread. Then cover the surfaces of the star with tinfoil or silver paper, to make them shiny.

To fasten the star ornament to the tree, bind the



FIG. 461. — A Star Tip Ornament



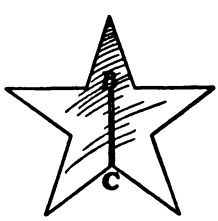


FIG. 462 FIG. 463

FIGS. 462 and 463. — The Halves of the Star Ornament

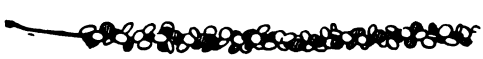


FIG. 464. — A Chain Made Up of Bits of Colored Paper

stem securely to the tree-tip. The lower points of the star serve excellently as points of attachment for the ends of

Ornamental Chains. There are several ways of making pretty chains. One way is to

String Popcorn on Thread, using some white kernels and some kernels stained red and blue, with dress-dyes, or any coloring material that you have at hand.

String Bits of Colored Paper on Thread to make chains like those shown in Figs. 461 and 464.

Strings of Cranberries and Glass Beads can be made to look like the glass-ball strings sold for Christmas trees. Figure 465 suggests the way to alternate the beads and cranberries. To make the cranberries sparkle like glass, coat some with glue, then sprinkle with "diamond dust"; gild the others with gold bronze — the kind sold for decorating radiators, — or wrap with tin-foil.

Figure 466 shows

A Rubber-Ball Ornament, made by covering a

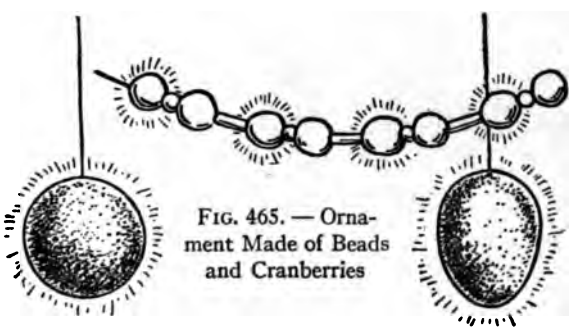


FIG. 465. — Ornament Made of Beads and Cranberries

FIG. 466. — Ornament Made of Rubber-Ball

FIG. 467. — Ornament Made of Egg-Shell

rubber-ball with gold bronze or "diamond-dust," then suspending it on a thread; and Fig. 467 shows

An Egg-shell Ornament, made of a "blown" egg-shell covered and suspended in the same way. Egg-shells dyed in various colors, as Easter eggs are dyed, are also pretty.

Unless you can have electric lights, it is better not

to light the tree at all than to run the risk of its catching fire. But unlit candles make pretty ornaments, so I have shown in Fig. 468

A Home-made Candle-Holder. This is made by wrapping a clothes-pin with tin-foil so that the upper edge of the tinfoil projects to form a cup for the candle (Fig. 469). Wrap the end of the candle with tinfoil to make it fit the cup (Fig. 470.) The clothes-pin sets down over the tip of a branch, as shown in Fig. 468, and a weight made of a marble or piece of clay, wrapped in tinfoil (Fig. 471), is suspended by thread from one leg of the clothes-pin (Fig. 468), to balance the holder.

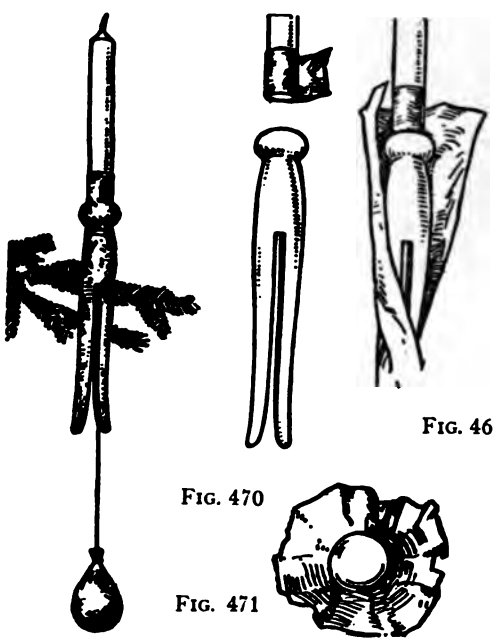


FIG. 469

FIG. 470

FIG. 471

FIG. 468. — A Candle-Holder
FIG. 469 to 471. — Details of Candle-Holder

Santa Claus Dolls like that shown in Fig. 472, to bestride the tree branches, are pretty ornaments and

easily made. The bodies are clothes-pins, with trouser-legs of red paper (*A*, Fig. 473) slipped over the ends (Fig. 474), a red paper coat (*B*, Fig. 473), with arms (*C*) glued close to the head of the pin (Fig. 475), cotton whiskers (*D*, Fig. 476), a peaked red paper hat (*E*, Fig. 476), and eyes marked with ink upon the clothes-pin head.

FIG. 476 FIG. 473

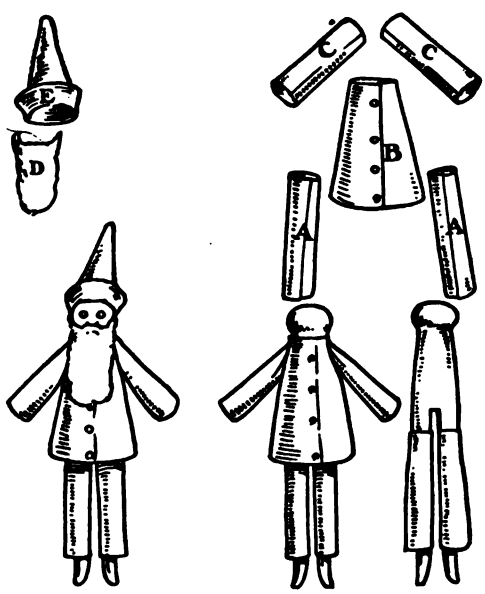


FIG. 472 FIG. 475 FIG. 474

FIG. 472. — A Santa Claus Doll Ornament
FIGS. 473 to 476. — How to Dress the Clothes-pin Doll

The Airship Ornament shown in Fig. 477 has a balloon with ends made of the halves of an egg-shell (*A*, Figs. 478 and 479). These are glued to a cylindrical piece (*B*) rolled out of cardboard; and a strip of cardboard (*C*) is glued along each side. The car is a small box, and the propeller (*D*, Fig. 480) is pivoted to its end with a pin. Threads suspend the car from the balloon, and others suspend

the balloon from the Christmas tree. Paint the balloon red, and the car yellow.

Tarlatan Stockings to hold the fruits and nuts that belong among the Christmas tree's trimmings, are

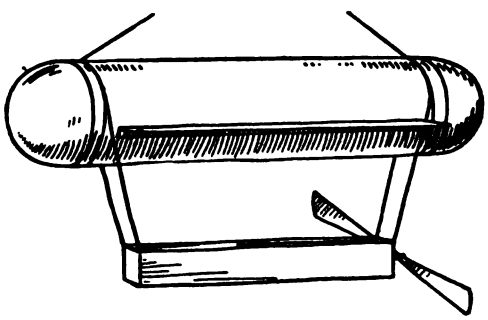


FIG. 477. — An Airship Ornament

FIG. 479

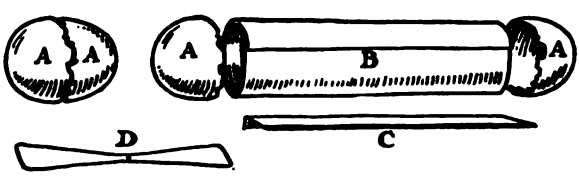


FIG. 480 FIG. 478

FIGS. 478 to 480. — Details of Airship

easily cut and sewed up. Figure 481 shows a stocking filled.

Cornucopias made of colored paper and suspended by ribbons (Fig. 482) are pretty holders for candy. Figure 483 shows how to cut a piece of paper for the cornucopia. Coat one edge of the piece of paper with

mucilage, then, starting with that edge, roll up the piece of paper into the form shown in Fig. 482, and paste the outer edge to it. Paste small colored pictures upon the outside of each cornucopia.

Goblins like the little fellow in Fig. 484 are only one of the many funny little people that can be made with orange heads, and cardboard-and-paper clothes. Cut away the outer portion of the orange rind to form eyes, nose and mouth, and make the ears out of cardboard and stick them into slits cut in the orange rind.



FIG. 481. — A Tarlatan Stocking to Hold Fruits and Nuts

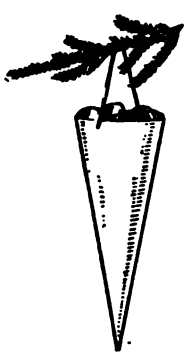


FIG. 482. — A Cornucopia to Hold Candies

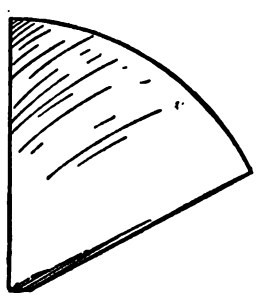


FIG. 483. — Cut Paper to this Shape for Cornucopia

Figure 485 shows a pattern for the ears, while Fig. 486 shows how to cut the cardboard body. Stick the neck of the body into a slot cut through the orange



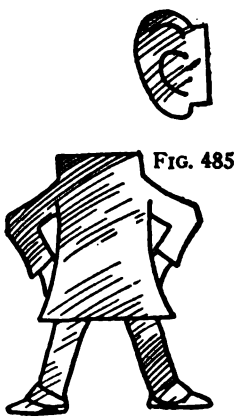


FIG. 485

FIG. 484 FIG. 486

FIG. 484. — A Goblin Ornament
FIG. 485 and 486. — Details of Goblin

rind. To hang up the goblin, stick a hairpin into his head, and tie a piece of thread to the loop end (Fig. 484). Paint the clothes with water-colors or color them with crayons. If you make several of the figures, provide some with hats and some with bonnets.



PART II

Spring and Summer Handicraft



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BIRD HOUSES BUILT BY PUPILS OF THE HAWTHORNE SCHOOL, WATERLOO, IOWA
Winners in the "American Bird House League," Prize Contest



CHAPTER XXVIII

HOME-MADE BIRD-HOUSES

SHELTERS and drinking-basins, and protection from cats and other bird enemies, are the recognized solution to the problem of inducing feathered neighbors to build nests close to our homes where we may have opportunity to study from day to day their interesting ways of living. Girls, boys, men and women have pledged themselves to save the birds, and, as a consequence, the bird-house building movement has attained tremendous proportions. In a short campaign last spring, children of the public schools in Pittsburgh, Pennsylvania, built more than 6,000 bird-houses; it is estimated that more than 15,000 were produced in Allegheny County, Pennsylvania; in St. Paul, Minnesota, nearly 4,000 houses were entered in the school system's contest; in Seattle, Washington, enough houses were disposed of by one school to make possible the purchase of a first-class printing outfit; and many other equally good records have come to me from schools, communities, and individuals to whom my plans have been supplied.

You wish to help in this praiseworthy undertaking, I know, and in order that you may, I have begun the

second part of your handy book with this chapter on practical bird-houses. Some of these plans have been borrowed from my *Handicraft for Handy Boys*, because these have been built and tenanted for many seasons. If you will look at the photograph of the exhibit of bird-houses entered in the Pittsburgh public-school contest, shown on the opposite page, you will notice a number of models of the tin-can Bird Castle shown in Fig. 494, the Bird Tower shown in Fig. 497, and variations of these designs.

Besides building houses yourself, you can render service to the birds by encouraging others to do likewise. For the purpose of enlisting every bird-lover in the work

The American Bird-House League* was founded by the author, and its aims are rapidly being realized with a membership that includes girls, boys, men and women in every part of the United States and Canada.



FIG. 259.—League Button

Houses that Attract Tenants. Birds show a practical rather than an artistic sense in choosing homes, and, unlike us, do not care whether their houses are plain or highly ornamented. A common box properly arranged is just as much of an attraction as one on which a great deal of time has

*If you or your teacher would be interested in full particulars concerning the American Bird-House League, what it has accomplished, and its bird-house contests for schools and individual members, a stamped addressed envelope sent to A. Neely Hall, Elmhurst, Illinois, will bring them.



BIRD-HOUSES ENTERED IN A CONTEST HELD BY THE PITTSBURGH PUBLIC SCHOOLS
(The Bird Castles and Bird Towers were built from Mr. Hall's Designs shown in Figs. 494 and 497)



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been spent in contriving fancy roofs, porches, and doorways, provided it is placed where there will be ample protection from cats and other enemies of birds, and where there will be a plentiful supply of seeds and insects for food near by, and water for drink and bath. But carefully designed houses, of course, appear neater and more pleasing to us, so that it is best to take pains in planning and constructing our garden bird-homes.

Among the many requests which I receive for bird-house plans and building information, are those for

The Right Dimensions to Use for Houses. These it is necessary to know, of course, before starting a house, because the proportions will vary for different species of birds. Little fellows like the house-wren prefer small, single-compartment houses, and the doorway should be about the size of a quarter, and not larger than 1⅛ inch in diameter. Therefore, when planning a wren home, don't consider a 20-room palace, with the expectation that wrens will feel at home in it; and don't make a larger doorway than the size mentioned above, because doing so will only invite the attack of sparrows. A sparrow's body cannot squeeze through a 1⅛-inch doorway.

The United States Department of Agriculture has issued

A Chart of Correct Dimensions for houses to accommodate every bird known to accept house nesting-places, compiled from data supplied by our best-informed naturalists, and I am presenting this chart

below so that you will know exactly what dimensi
to use for the species of birds you wish to house.

Dimensions of Nesting-boxes for Various Species Birds

(From Farmers' Bulletin 609)

Species.	Floor of cavity.	Depth of cavity.	Entrance above floor.	Diam. of entrance.	Heig abov grou
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Fee*
Bluebird	5 by 5	8	6	1½	5 t
Robin	6 by 8	8	(1)	(1)	6 t
Chickadee	4 by 4	8 to 10	8	1⅛	6 t
Tufted titmouse	4 by 4	8 to 10	8	1¼	6 t
White-breasted nuthatch	4 by 4	8 to 10	8	1¼	12 t
House wren	4 by 4	6 to 8	1 to 6	⅞	6 t
Bewick wren	4 by 4	6 to 8	1 to 6	1	6 t
Carolina wren	4 by 4	6 to 8	1 to 6	1⅛	6 t
Dipper	6 by 6	6	1	3	1 t
Violet-green swallow	5 by 5	6	1 to 6	1½	10 t
Tree swallow	5 by 5	6	1 to 6	1½	10 t
Barn swallow	6 by 6	6	(1)	(1)	8 t
Martin	6 by 6	6	1	2½	15 t
Song sparrow	6 by 6	6	(2)	(2)	1 t
House finch	6 by 6	6	4	2	8 t
Phoebe	6 by 6	6	(1)	(1)	8 t
Crested flycatcher	6 by 6	8 to 10	8	2	8 t
Flicker	7 by 7	16 to 18	16	2½	6 t
Red-headed woodpecker	6 by 6	12 to 15	12	2	12 t
Golden-fronted woodpecker	6 by 6	12 to 15	12	2	12 t
Hairy woodpecker	6 by 6	12 to 15	12	1½	12 t
Downy woodpecker	4 by 4	8 to 10	8	1¼	6 t
Screech owl	8 by 8	12 to 15	12	3	10 t
Sparrow hawk	8 by 8	12 to 15	12	3	10 t
Saw-whet owl	6 by 6	10 to 12	10	2½	12 t
Barn owl	10 by 18	15 to 18	4	6	12 t
Wood duck	10 by 18	10 to 15	3	6	4 t

[1] One or more sides open. [2] All sides open.

Materials for Bird-house Building can be found in every household. Tomato cans, apple and sugar barrels, fish-kegs, nail-kegs and white-lead kegs, cheese-boxes, butter-firkins, wooden pails, flower-pots, and small boxes such as soap and starch come in, will furnish all the materials necessary for the houses illustrated in this chapter.

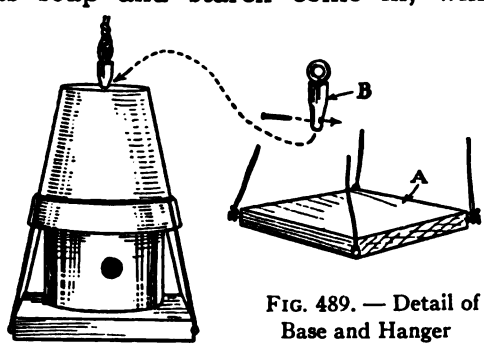


FIG. 489. — Detail of Base and Hanger

A Bird Temple like that shown in Fig. 488 is an excellent little wren-house to hang from a tree branch. It requires an earthen flower-pot, a tomato-can, a piece of board about 7 inches square, a short stick, a screw-eye, and some wire.

FIG. 488.—A Bird Temple.

First, mark the doorway upon the side of the can and cut the opening with a can-opener, then fasten the can to the square base board (*A*, Fig. 489), by driving large carpet-tacks through the can-bottom into the board.

The inverted flower-pot which forms the roof must have its drain-hole plugged up to make the temple roof water-tight and for the purpose a wooden plug (*B*, Fig. 489) should be whittled to fit the hole. Screw a screw-eye into the top of this plug to attach the suspending wire to, and drill a small hole through the lower end so that a short nail can be pushed through

after the plug has been inserted in the flower-pot, to keep it from pulling out (Fig. 489).

Fasten the flower-pot over the can by means of wire, first passing a loop of wire entirely around the pot, close to the projecting rim, then running short wires from this wire down to nails driven into the four corners of base *A*, as shown in Fig. 489.

Make several of these wren-houses, paint them, and you will be surprised to see what pretty little houses they are.

A Box Bird-house like that in Fig. 490 can be made out of an empty starch box, or you can cut out the pieces and put together the box yourself. In case you make the box, the top edge of the end pieces can be cut slanted to allow for the slanted roof; but if you use a ready-made box, a triangular piece will have to be added to the edges (*A*, Fig. 491). If you make the box, cut the center partition, which divides the box into two compartments, the same size as the end pieces; but for a box ready made, cut this piece first and then use it for a pattern for laying out the triangular pieces to be added to the ends. The doorway in each can be cut with a jack-knife; this will be easy to do if the ends are in two pieces, because one-half of the hole can be cut out of the edge of each piece (Fig. 491).

After the ends of the box have been pieced out, nail a strip to the back to make it of the same height, then cut the roof board large enough so it will project about 1 inch over the front and ends of the box, and nail it

in place. Fit the perch-sticks into holes bored in the ends of the box, as shown in Fig. 490.

This house may be mounted upon a 4-by-4 post, but it will look better if bracketed to a wall, on account of the style of its roof. A wooden bracket may be cut out and nailed to the wall, or a strip 6 or 8 inches longer than the box may be nailed to the back, and the ends of thi nailed to the wall (Fig. 490).

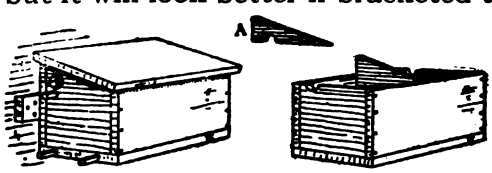


FIG. 490 FIG. 491
Details of a Box Lean-to Bird-house.

Another Box Bird-House is shown in Fig. 492. The illustration shows clearly how the back, sides, and roof are cut and fitted together, and how the water-pan is bracketed out from the lower end of the back board, and I am going to let you work out the sizes for the various pieces according to what you think they ought to be.

The lower portion of the back board may be screwed or nailed to a wall or post, or if you omit the pan and place the box in a tree, it can

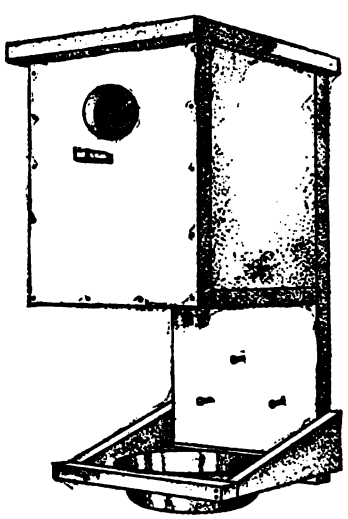


FIG. 492. — Another Bird-house with a Pan for Drinking-Water.

be tied securely by running a piece of clothes-line several times around it and the tree trunk.

A cheese-box cover and one of the small kegs in which mackerel and herring come to the market furnish the materials for making

A Bird Tower such as that shown in Fig. 493. The keg must be thoroughly washed out with hot water and either washing-soda or lye, and should be painted inside, to remove the fish odor. Bore four openings in the side of the keg, and fasten a perch-stick in a small hole below each opening.

The illustration shows the keg mounted upon the end of a rug-pole, but if you cannot get one of these, the top of a post, or a piece of 2-by-4 set several feet into the ground, will serve the purpose. Nail the keg to the support, then set the cheese-box cover on top and nail it in place.

The lower perches should run through the support as shown in the illustration, and may be of pieces of broken flag-staffs or cabinetmaker's dowel-sticks.



FIG. 497. — A Tin-Can Bird Tower

Figure 497 shows

A Tin-can Bird Tower. This is made of empty tomato cans. Cut a doorway in the side of three cans about 1½ inches from the top; do not remove the piece of tin, but bend it out as shown in Fig. 498 to



FIG. 493. A BIRD TOWER.



FIG. 495. A BIRD ARK.



FIG. 496. A HOUSE AND SWING.



FIG. 494, A BIRD CASTLE.



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form a perch. Then remove the top of one can (*A*, Fig. 499), and the top and bottom of the other two cans (*B* and *C*, Fig. 499). As the ends are generally soldered on, it is only necessary to hold a can over a flame until the solder melts, and then knock off the ends (Fig. 498). The cans are joined together by means of two circular blocks of wood (*E* and *F*, Fig. 499), which also divide the tower into three compartments.

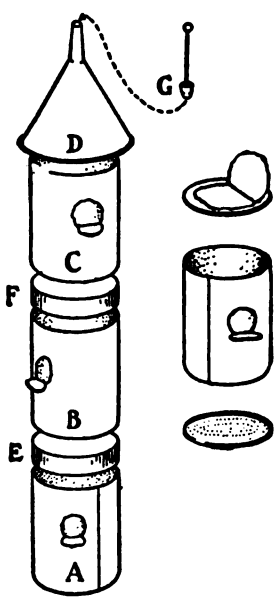


FIG. 499 FIG. 498

FIGS. 498 and 499. — Details of the Tin-can Bird Tower shown in Fig. 497.

A 6-inch tin funnel forms the roof (*D*, Fig. 499), and a cork with a piece of a hatpin stuck into it (*G*) fits into the spout of the funnel for a spire.

Tack the edges of the cans to the wooden blocks, and wire the funnel roof to the upper can as shown in Fig. 497, fastening one end of each wire to the funnel rim and the other end to a small staple driven into the upper block. Twist the wires until the funnel is firm. Nail the bottom can to the top of whatever support you provide for the tower. Paint the tin to prevent its rusting.

The Bird Castle shown in Fig. 494 was designed and built by the author a number of years ago for his

garden. Since that time hundreds of castles of similar design have been built by girls and boys from the author's plans. In the photograph opposite page 264, you will see a number of models of this castle, entered in a bird-house contest held by the Pittsburgh public schools.

The corner towers of the castle are built like the tower in Fig. 497. The castle measures 12 inches long, 7 inches wide, 16 inches high at the highest point, and 11 inches high at the lowest point, and it is made of box boards.

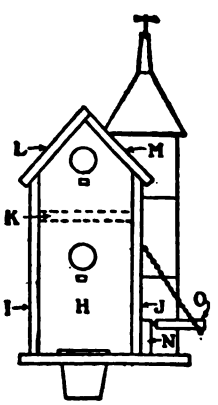


FIG. 500. — End View of Bird Castle shown in Fig. 494, with One Tower in Position

Figure 500 shows an end view of the castle with the tower of the opposite end in position. First cut the two end pieces *H*, and a third piece of the same shape and size for a center partition, then nail the front and back boards *I* and *J* to them. Cut the pieces indicated by the dotted lines *K* to fit between the center partition and the end pieces, for a loft floor. Cut an opening for each compartment in the end pieces (Fig. 500).

Nail the roof boards *L* and *M* in place and fasten strip *N* to the base at the front (Fig. 500), then mount the castle upon a platform 11 inches wide and 24 inches long. Build up the towers at the two corners, and nail each can to the corner of the castle as you put it in place.

The drawbridge (*O*, Fig. 500) measures 2½ inches by 3¾ inches; hinge one end to the base strip, and suspend the other end by small brass chains fastened to the under side and to the front wall.

Each can of the towers has a circular opening cut in it, but the long narrow windows in the towers and front wall of the castle, and the large doorway, are painted. The walls should be painted white, and the roof should be green or red.

The little flag and the weather-vane are mounted upon nails stuck into corks, and the corks are pushed into the spouts of the funnels (Fig. 500). Set a cup in the platform at each end for drinking water. The castle may be bracketed upon a wall as shown in Fig. 494, or it may be mounted upon a post.

A Bird Ark. For the bird ark shown in Fig. 495, three cans are joined together in the same manner as those of the tower are joined (Figs. 498 and 499). Both ends of the center can are removed, but the bottom is left on the end cans. Cut a doorway in the side of the center can and another through the bottom of each end can; do not remove the pieces of tin from the openings, but bend them out for perches, as shown. Cut the roof boards of the proper size to project over the ends and sides of the cans, nail them together, and then fasten them in place by driving nails through the boards into the connecting blocks between the cans.

Fasten the ark between blocks upon a board platform, then mount the platform upon a post support, and

brace the support with brackets to make it secure. Run several perch-sticks through the brackets, as shown.

A Wall Bracket Bird Ark (Fig. 501). This is constructed in the same way as the ark described above, and the shape of the brackets and arrangement of perch sticks is clearly shown in the illustration.

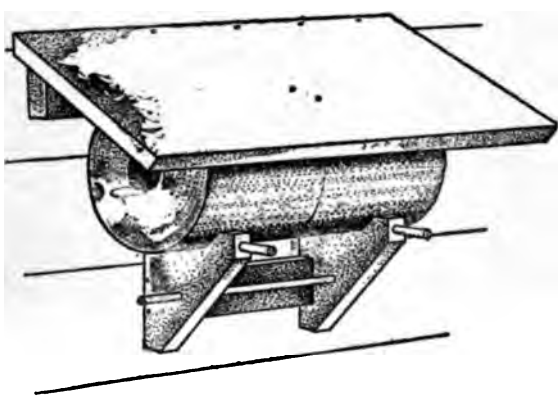


FIG. 501. — A Wall-Bracket Bird Ark.

A House and Swing made out of a wooden pail inverted and bracketed to a wall as shown in Fig. 496, so that its handle hangs down and forms a swing, is an attractive little house for the back yard.

Make the vertical partition to divide the pail into two compartments, and cut a circular piece of board to fit in the top. Nail the roof board to the bottom of the pail, cut an opening into each compartment, and fit a small block of wood beneath each opening for a platform.

Nail a short block of wood to the wall where the house is to go, for the pail to rest on, and nail a longer strip at the proper height above it to nail the roof-board to.

The Hanging House shown in Fig. 502 may be made from a 25-pound or a 12½-pound white-lead keg; this

can be procured from any painter. Cut the square roof board wide enough to project 3 or 4 inches over the sides of the keg, and bore two holes in the proper positions for the wire handles to run through. Each opening should have a perch fastened below it. Suspend the house by means of two cords as shown in the illustration.



FIG. 502. — A Hanging House.

Birds seek the protection of trees and roof-eaves during storms, and

A Shelter on the plan shown in Fig. 503 will help to make your yard a popular resort at such times. You will also find that the birds will fly to these perches to dry and preen their feathers after taking their morning baths.

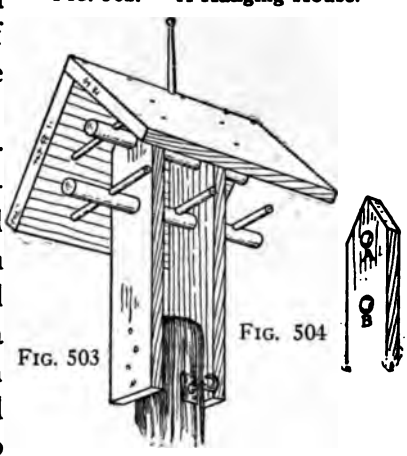


FIG. 503

FIG. 504

FIGS. 503 and 504. — A Shelter.

Figure 504 shows one of the two uprights which support the perches and roof. These may be cut out of strips 3 or 4 inches wide. Miter the top ends as shown, — that is, cut off the two corners at an angle of 45

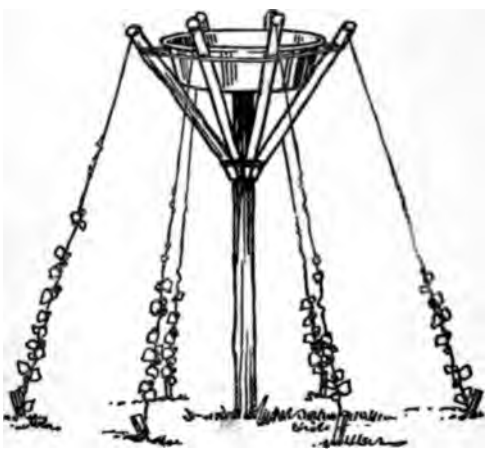


FIG. 505. — A Garden Bird Bath.

degrees;—bore the holes *A* and *B* 1 inch in diameter, *A* about 3 inches below the top, and *B* 6 inches below that again; then slip a piece of broom-handle through two of the holes to keep them in line and nail the lower ends to opposite sides of a post.

The long perch-sticks are pieces of broom-handle, and the small ones are dowel sticks. The small perch-sticks are run through holes bored through the pieces of broom-handle.

Cut the roof boards about 18 inches long, one 12 inches in width, and the other as much less as is necessary to allow for the lapping of edges. Nail the face of the wide piece to the edge of the narrow piece, then nail the roof to the uprights.

A garden is not complete without

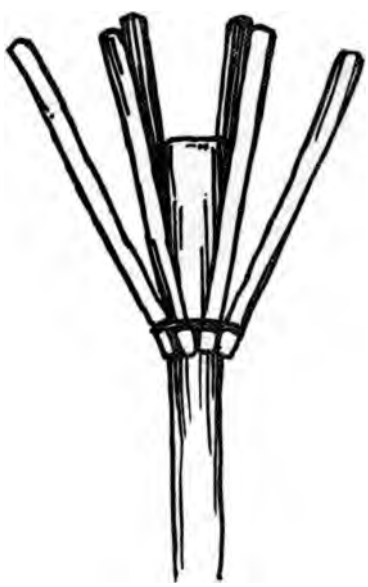
A Bird Bath. In Fig. 505 is shown one which also will serve the purpose of a vine rack. The first thing to do is to drive a pole into the ground. Then select straight pieces of branches 12 inches long, pass a piece of cord around each near one end (Fig. 506), and tie

around the pole about 10 inches below its top (Fig. 507). These pieces form a crotch-setting for the bird basin, for which a tin pan may be used.

After setting the pan upon the pole, pass another piece of heavy cord around the branches, near the upper ends, with which to bid the branches tightly against the sides of the pan. Tie cords to the tops, and run them down to stakes driven into the ground, to train vines upon. You will be more than repaid for providing the bath, by the appreciation shown by the birds.



FIG. 506



FIGS. 506 and 507. — Details of Support for Bird Bath.

Miscellaneous Notes. Probably in the following notes you will find suggestions that will be helpful.

Tin-can Bird-houses will become too hot for birds if the sun's rays beat upon them. Always place these houses in shady places.

Prevent Drafts Upon Nests by closing all open joints in the bird-houses. Holes may be bored through the wall for **Ventilation,** but not lower than the doorway.

Doorways. Birds prefer houses with openings no larger than their bodies require to enter. An enemy small enough to enter can be taken care of; a larger enemy is likely to be a menace.

Water-tight Roofs. A good method of making water-tight roofs is by the use of roofing-felt. This may be cut into small squares and put on in the same way as shingles. Oilcloth is another good covering material. If the house is small, a water-tight roof can be made by using one piece of board.

Finishing. All bird-houses should be given two coats of oil paint, or one good coat of wood stain. If you prefer to stain the houses, go to a paint store and buy shingle-stain. Brown and green are the stain-colors generally used; white, brown, and green are the paint colors generally used. Putty up all nail-holes and cracks after staining is done, coloring the putty with stain, and on a house to be painted, putty after the first coat of paint has been applied.

Protect Your Houses from cats and squirrels by fastening sheet-iron collars around the trunks of trees that you suspend houses from, also around post supports.



CHAPTER XXIX

GARDEN HANDICRAFT

IF you will plant flower-seeds indoors in the early Spring, you will have sturdy seedlings to transplant in your outdoor garden by the time all danger of frost is past. These will mature from a month to six weeks earlier than plants from seeds started when the season is far enough advanced to permit outside planting.

All that this indoor planting requires is a box or two filled with finely pulverized soil, but a novel arrangement is to make

Miniature Greenhouses like those shown in Figs. 508 and 511. Starch-boxes are of about the right size for these. It is better to use small boxes than large ones because the earth makes the boxes heavy, and the smaller they are the easier they are to handle.

Figure 508 shows the simpler form —

A Greenhouse with a Lean-to Roof. Cut the top of the starch-box ends slanted so that the front edge is about 2½ inches high and the rear edge 5 inches high, and cut down the front and back even with the edges of the ends, as indicated by dotted lines in Fig. 509.

With the cutting done, get a piece of glass large enough to fit over the top and project a trifle over the

front and ends. Possibly you can find an unused picture-frame with a glass of the right size, or several camera plates that can be fastened together with passe-partout paper to make a piece large enough to cover the box; if not, a painter will sell you a piece for a nickel. Hinge the glass with a strip of tape glued both to the glass and the back of the box, then coat the strip with shellac to protect the glue from the action of water.

The Greenhouse with a Gable Roof, shown in Fig.

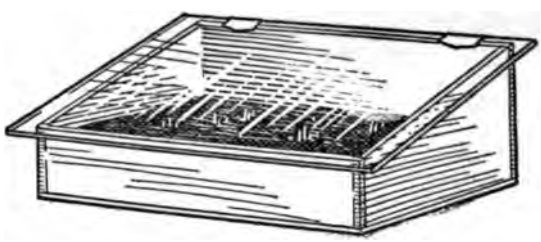


FIG. 508. — A Miniature Greenhouse with a Lean-to Roof

508, looks more like a florist's greenhouse. The starch-box which forms the foundation must be cut down as indicated by dotted lines in Fig. 512, so the remaining depth will be about 2½ inches (Fig. 513).

With the box thus prepared, cut two end pieces out of thin box board (*A*, Fig. 514), and tack these to the box ends. Make the peak of each 8 inches above the bottom edge. The box may be stood on end upon the boards for the purpose of marking out the lower portion of end pieces *A*. When the two board ends

have been marked out, cut, and tacked to the box ends, procure two pieces of glass of the right size to project over ends *A* and the sides of the box, as shown in Fig. 511. Join these two pieces (*B* and *C*, Fig. 515) at the peak with a strip of tape lapped over them (*D*, Fig. 515).

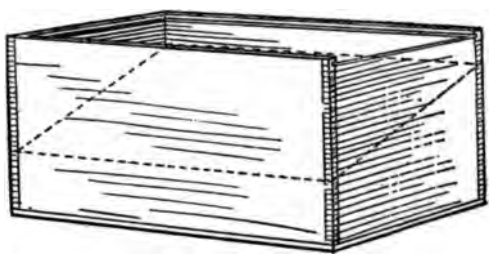


FIG. 509. — The Dotted Lines Indicate Where to Cut the Box Sides.

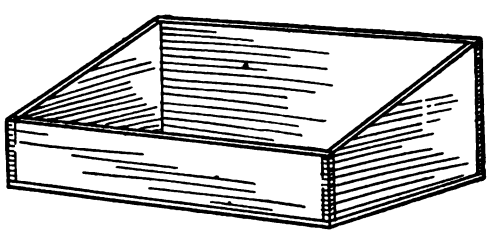


FIG. 510.— The Cut-down Base Ready for the Glass Roof.

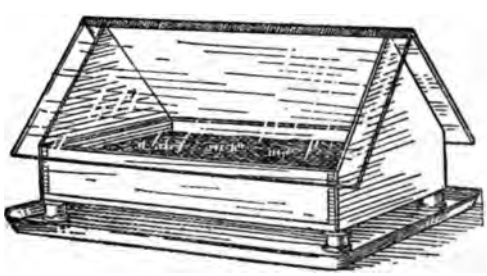


FIG. 511. — A Greenhouse with a Gable Roof.

Unless the Boxes are Metal-lined, they are likely to leak after you water the planted seeds, so it is a good idea to place beneath the box

A Cake-tin to Catch Drippings; also to attach spool feet to keep the bottoms high and dry (Fig. 511).

Paint the Greenhouses with a couple of coats of white enamel.

Select loam soil from last summer's garden, for **Filling the Miniature Greenhouses**; also, get some pebbles or broken stone. Scatter a layer of the stone

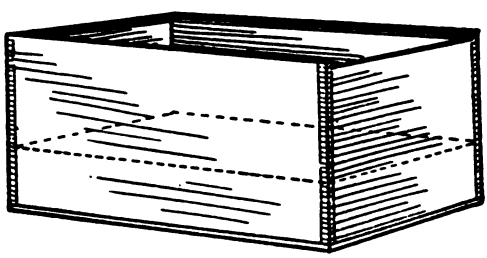


FIG. 512. — The Dotted Lines Indicate Where to Cut the Box Sides

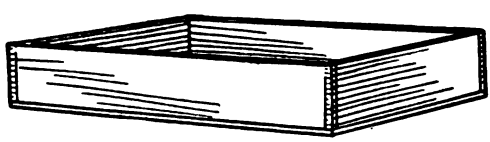


FIG. 513. — The Box with Sides cut Down

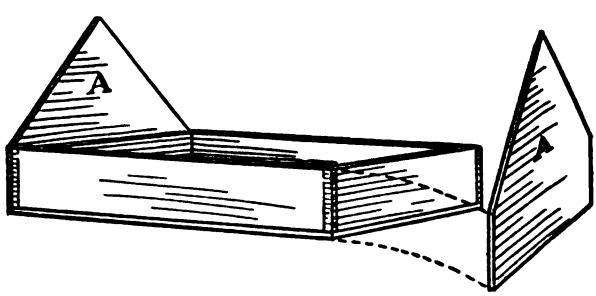


FIG. 514. — Put on the Gable Ends Like This

over the box bottom, then spread the soil to a depth of 5 or 6 inches on top of the stone.

Plant the Seeds not closer than 2 inches apart, and not deeper than 4 diameters of the seeds. Water frequently, to keep the soil continually moist, and allow plenty of sunlight to enter through the glass roofs.

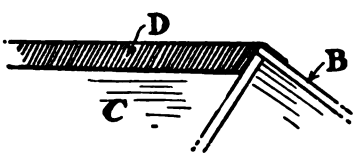


FIG. 515. — Hinge the Halves of the Glass Roof Like This

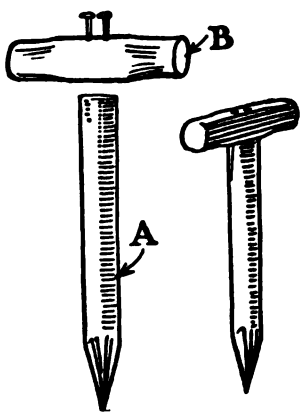


FIG. 517. FIG. 516.
FIGS. 516 and 517. — A Dibble

One of the pleasures of gardening is the trying out of new

Garden Ideas, and on following pages I have shown a number of devices which I have found good, and which I know will be worth your adopting.

When planting, have you ever used

A Dibble for making holes of the right size for seeds and transplantings? Figure 516 shows a simple dibble made of a short piece of broom-handle (*A*, Fig. 517), pointed at one end, with a short crosspiece (*B*) nailed

across the other end for a handle. The handle may be omitted, but it gives a better hold for working the point into the ground.

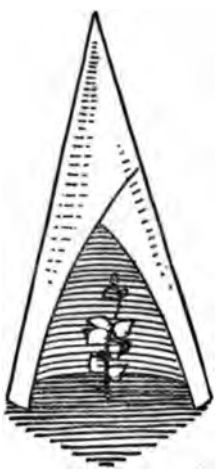


FIG. 518

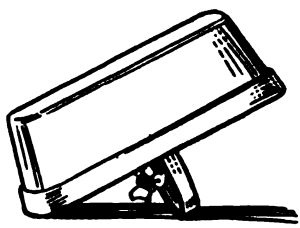


FIG. 520

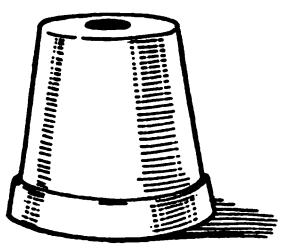


FIG. 519

FIGS. 518 to 520. — Three Methods of Shielding Transplantings until they have Taken Root

It is necessary

To Protect Transplantings from the sun until they have taken root and are able to withstand the heat without wilting, and Figs. 518, 519 and 520 show three good means of shielding them. Figure 518 shows

A Paper-funnel Shield, so folded that one side, left open, can be turned away from the sun, to admit light and air.

The Flower-pot Shield (Fig. 519) is commonly used

for short plants, because flower-pots are almost always at hand;

The Basket Shield (Fig. 520) is a good type because, while it gives protection, it admits light and air. These coverings should be removed after sundown, of course, so the plants will receive the night dew.

Garden Markers should be used for indicating the locations of the different kinds of seeds you plant, and excellent markers can be made of short pieces of lath (Figs. 521 and 522). Point one end of each marker, and write or paint the seed name on one face. If you will go to the trouble of sandpapering the sticks, and giving them a coat of white paint, before marking them, the markers will be worth keeping from year to year.

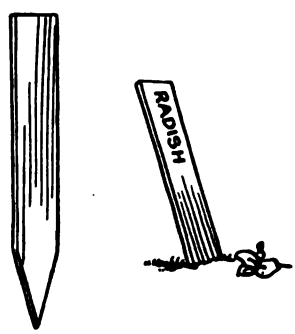


FIG. 521 FIG. 522

FIGS. 521 and 522. — A Garden Marker

A Small Sprinkler is handy, and, lacking a sprinkling-can, you will find a tin can with a perforated bottom (Figs. 523 and 524) a good substitute. Punch holes through the can-bottom with a nail. Fill the sprinkler by dipping it into a pail, and hold it as the girl in Fig. 523 is holding it.

The Umbrella Bower shown in Fig. 525 makes an excellent support for morning-glory, wild cucumber, and cypress vines. A worn-out umbrella that is past repair should be used. If any ribs are broken, it is a

simple matter to bind a piece of heavy wire to them, so as to stiffen them; and if the connections have

FIG. 524



FIG. 523. — A Small Garden Sprinkler
FIG. 524. — Perforate the Bottom of a Tin Can

rusted through, they may be wired back in place well enough to serve your purpose.

For the lower part of the support get an old broom.

Instead of sawing off the handle above the straw, cut the wire binding and unwind the wire, so as to preserve the full length of the handle. Then cut two blocks of wood 10 or 12 inches long, and by means of these and cord or wire, splice together the broom-handle and umbrella-handle.

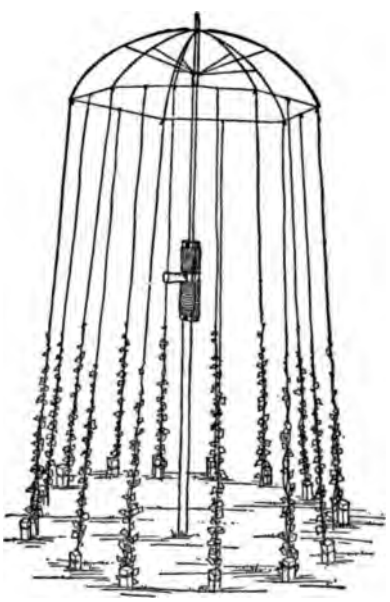


FIG. 525. — An Umbrella Bower

Set the lower end of the broom-handle into the ground in a spot in the garden or on the lawn suitable for a vine rack. Run a cord around the ends of the umbrella-ribs, slipping it through the eye of each rib; then tie a piece of cord to this cord, at each rib, and another in the center of each space between (Fig. 525), and tie the other end of these cords to stakes driven into the ground directly in line with the points at which they are tied above, but about 6 inches farther away from the broom-handle.

Transplant morning-glory shoots, or whatever species of vine you wish to have run over the frame, beside the stakes, and entwine the small tendrils around the strings to give the vines a start. The vines mentioned

on a preceding page grow rapidly, and by carefully training them, guiding the little fingers so that each vine will spread to the adjoining strings, the spaces may be completely interlaced. By the time the top of the umbrella-frame has been reached you will have a thickly covered bower.

It is impossible for me to show you the beauty of

The Barrel-hoop Bower, by the illustration (Fig. 526), because this had to be drawn in the form of a framework diagram, rather than a pretty picture. Try out this idea and see what a beautiful bower you will have when the framework is thickly covered with vines.

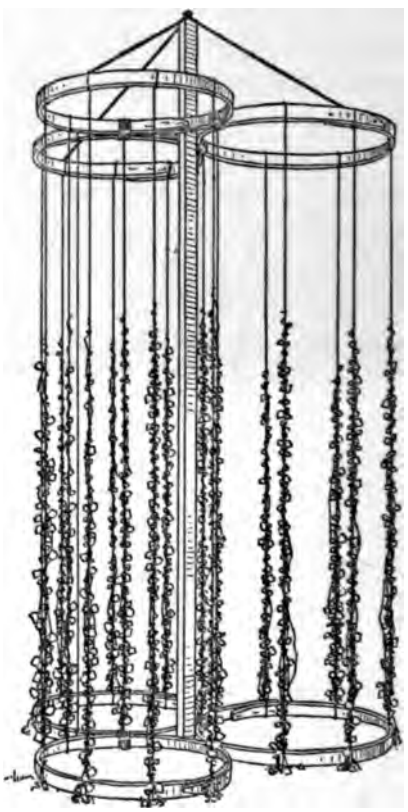


FIG. 526. — A Barrel-hoop Bower

Six barrel-hoops were used for the bower illustrated. If you cannot find six hoops, omit the three bottom ones and drive stakes into the ground to tie the lower ends of the strings to.

Bind each set of three hoops together with cord, as shown. Then set the end of a clothes-pole in the ground for a support, drop one set of hoops over its top, and let them slide down to the ground; and support the other set 6 inches or so below the top of the pole by strings run from the hoops to a nail driven into the pole top.

The illustration shows how strings connect the two sets of hoops, and how these strings should be spaced. Transplant your vines around the lower set of hoops, providing a vine for each string.

I wonder if any of you know about the simple method of

Putting Up Strings for Vines, shown in Fig. 527. Drive stakes into the ground from 3 to 4 feet apart, instead of using one stake for each vine, then drive a double-pointed tack (Fig. 528), or nail, into the top of each, connect the tacks or nails with wire or heavy cord, and tie the strings to the

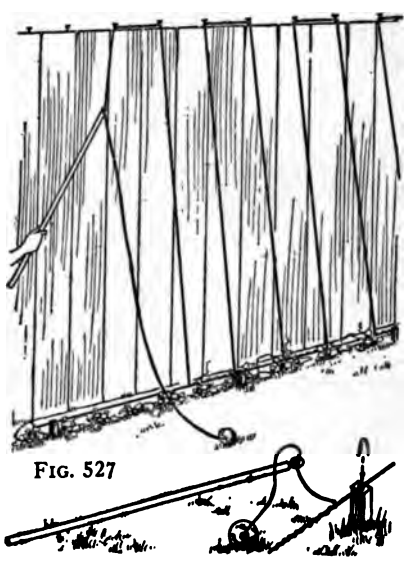


FIG. 527

FIG. 528

FIG. 527. — An Easy Method of Putting up Strings for Vines

FIG. 528.— The Stick that Enables you to Reach the Top Nails without a Ladder

wire or cord at the desired distances. Now, if nails are provided for the upper ends of the strings (Fig. 527), once they are in place you will not need a ladder to put the strings over them. Use the unique scheme shown in Fig. 527. Screw a screw-eye into the end of a stick, thread the screw-eye with string as you would thread a needle, and then by means of the stick hook the string over the nails. After tying the string to the horizontal wire or cord, run it up and over a pair of nails, then down to the wire or cord; tie, and run it along to the next vine, and up and over another pair of nails; and so on until a string for each vine has been provided.

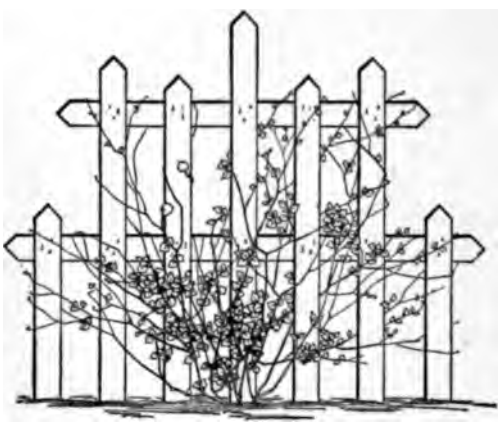


FIG. 529. — A Vine Trellis.



FIG. 531



FIG. 532



FIG. 530

FIGS. 530-532. — Two Ways of Fastening Trellis Together.

A Trellis for a climbing-rose, or other vine, may be made of laths fastened together in the manner shown

in Fig. 529. The laths may be nailed together with brads (Fig. 530); or the edges may be notched as shown in Fig. 531, to receive lashings of cord put on as shown in Fig. 532.

Cut the ends of the lath-strips pointed with a saw. Drive the lower ends of the upright strips into the ground.

A Trellis of More Elaborate Design, though one that is quite as simple to make, is shown in Fig. 533.

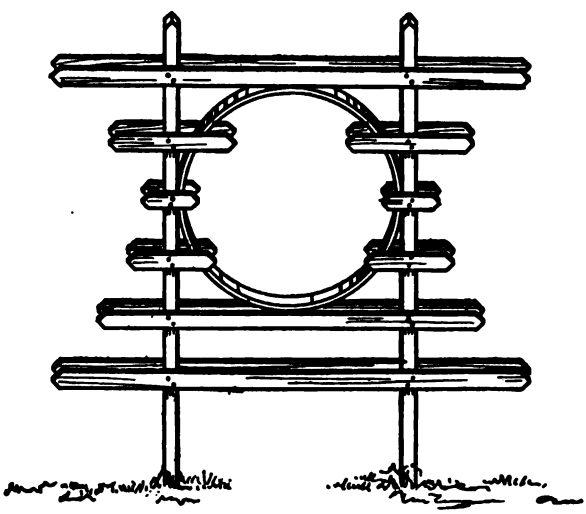


FIG. 533. — A Trellis of More Elaborate Design

The center circular frame is a barrel-hoop, the upright pieces each side of this are sticks about 1½ inches square, and the cross-pieces are laths.

It is easiest to build this trellis flat upon the ground, then set it in position. First, fasten the barrel-hoop

between the uprights; then cut the lath cross-pieces to the right lengths and nail them to the uprights. You will notice that the horizontal strips are nailed to both sides of the uprights.

A Trellis for Sweet Peas like that shown in Fig. 534 is not difficult for a girl to put up. Use strips 2 inches wide and 1 inch thick for the framework, and brace the upright pieces with diagonal strips as shown.

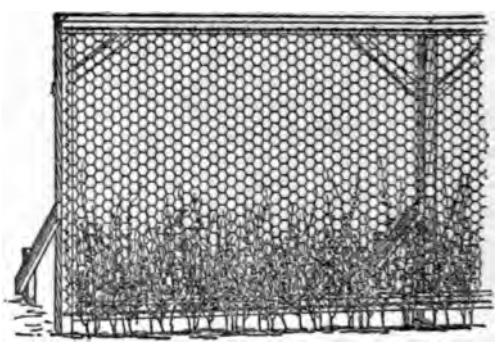


FIG. 534. — Trellis for Sweet Peas

Wire mesh can be had with mesh of a number of sizes (the meshes are the openings), the three common sizes are 1 inch, 1½ inches, and 2 inches, and it comes in various widths, from 1 foot to 6 feet. Stretch the wire as tight as possible, to make a neat job, and tack it to the framework with small staples.

A Weeding Stool makes weeding less tiresome, and Fig. 535 shows how by nailing a board across the open top of a small box, for a seat,

A Weed Receptacle may be made of the box, also. Stand the box on end (Fig. 536) and it will serve as a step for reaching to the tops of high vine-racks; but a better scheme than this is

A Set of Garden Steps, made of two weeding stools, one enough smaller than the other so that when stood

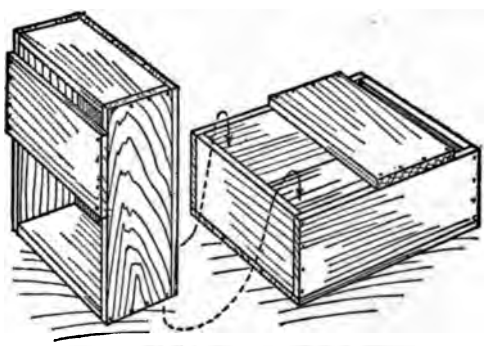


FIG. 536 FIG. 535

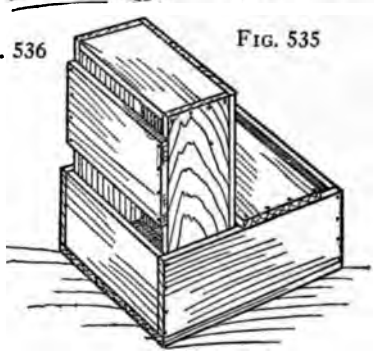


FIG. 537

FIG. 535. — A Weeding Stool and Weed Receptacle
FIG. 536. — The Stool Stood on End for a Step
FIG. 537. — Two Stools Combined to Form a Set of Garden Steps

on end it will fit inside of the other box, between the end and the seat-board, as shown in Fig. 537, You will find this combination of boxes one of the handiest garden accessories that you own.



CHAPTER XXX

HANGING-BASKETS AND FLOWER-BOXES

As pretty hanging-baskets as any one would wish for can be made of easily obtained materials, some picked up at home, others purchased cheaply at the hardware store.

The Tin-Funnel Basket shown in Fig. 538 requires a funnel 6 or 8 inches in diameter. Pierce three holes through the tin, below the rim, spacing them equidistantly (*A*, Fig. 539), and connect a chain hanger to each hole by means of a short piece of wire. Run the wire through the hole and through the end link of the chain, then twist it. Bring together the upper ends of the chains, and wire them together, twisting the wire into a ring to loop over the hook that the basket is to hang from. Light-weight chain costs about 2 cents a foot at the hardware store.

A cork fitted into the funnel spout will act as a stopper. It may be removed after every watering long enough for surplus water to drain out.

Paint the Tin to prevent its rusting. White or green is best.

The Colander Basket shown in Fig. 540 is neat in appearance and it is easily made. Its perforated

sides permit surplus water to drain off, thus preventing the fermentation which often results from water standing in the bottom of a plant receptacle with no outlet.



FIG. 538. — A Tin-Funnel Basket.

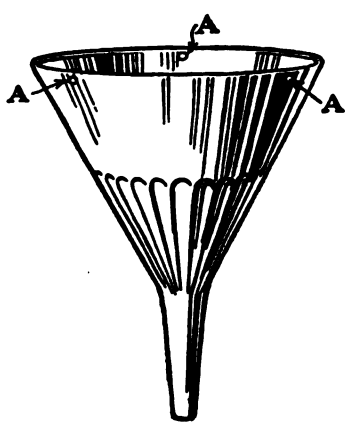


FIG. 539. — Pierce Holes below the Rim, through which to Run Chain Hangers.

Figure 541 shows how three holes (*A*), punched through the sides below the rim, at equal distances apart, are required to wire the lower ends of three chain hangers to.

Figure 542 shows

A Rustic Basket made of a pail (Fig. 544). The pail is fastened upon a square wooden base (Fig. 543), and around the sides of the pail are piled straight pieces of branches log-cabin fashion. The basket



FIG. 540. — A Colander Basket

may be made large or small, according to the size of the pail you use.

Place the pail upon the base, and draw a pencil line around its bottom. Then screw eight small screw-eyes into the board about ½ inch outside of this line (*A*,

Fig. 543); also, punch eight holes through the pail a trifle below the rim; and connect the screw-eyes and the rim holes with pieces of heavy cord stretched tightly and tied securely to them. These cords will hold the pail upon the base, and hold the branch logs close to the sides of the pail. By Fig. 542 you will see how the ends of the logs are crossed, also how the length of each tier of logs is increased to allow for the slanting sides of the pail.

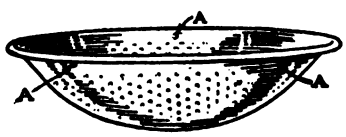


FIG. 541. — Perforate with Three Holes through which to Run Chain Hangers.



FIG. 542. — A Rustic Basket Made of a Pail

When the logs have been laid up to the height of the pail-rim, bind together the ends by winding a cord around them, in and out, from top to bottom, and tying. Screw four screw-eyes into the base near the corners, to attach hanging-chains to.

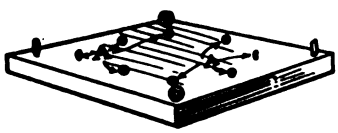


FIG. 543. — Base

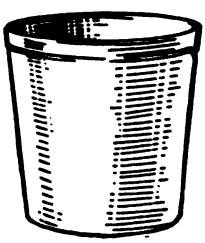


FIG. 544. — Lard Pail for Rustic Basket



FIG. 545. — An Egg-basket Flower Basket

The Egg-basket Flower Basket shown in Fig. 545 requires but little preparation. All that is necessary, is a lining of moss, and wire hangers. Turn the lining mossy-side out. Fasten a pair of wire hangers to the handle as shown.

Wire egg-baskets come in different shapes and sizes, but the one shown in the illustration is of the best proportions for a flower-basket. You can buy one for 10 or 12 cents.

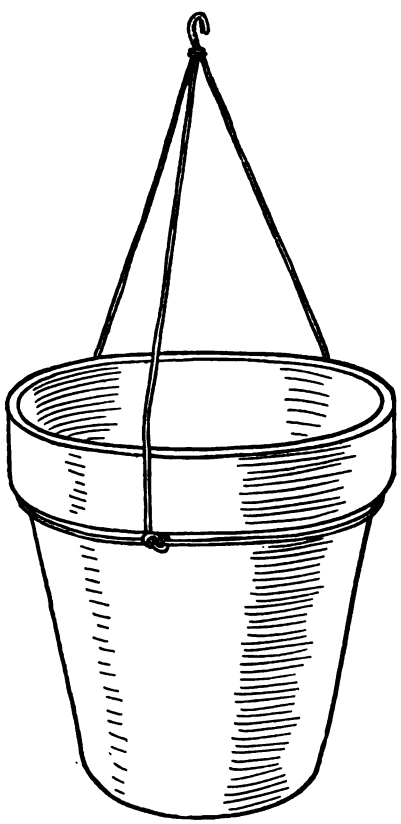


FIG. 546. — A Flower-pot Basket

The Flower-pot Basket in Fig. 546 is supported in a frame like that shown in Fig. 547. This is made of light-weight wire. Stove-pipe wire is a good kind to use because it is easily bent and breaks with a few twists at the point desired. First, form the wire ring of the right diameter to catch around the under side of the top flange of the flower-pot, then attach the

three wire hangers to the ring, spacing them equidistantly, and join the upper ends to form a hook, as shown. If you cannot find the wire for making the frame, use heavy wrapping-twine.

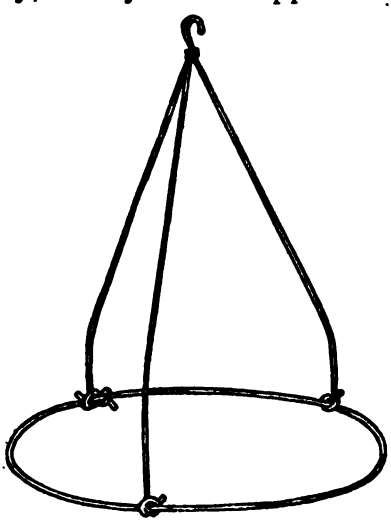


FIG. 547. Hanger for Flower-pot Basket

The Two-pot Basket shown in Fig. 548 requires a wooden frame like that shown in Fig. 549, to hold the flower-pots. Cross-strips *B* of this frame should be cut to the length of the outside diameter of the flower-pots, measured beneath the top flange, and strips *A* should be cut of the right length to connect the cross-pieces. After

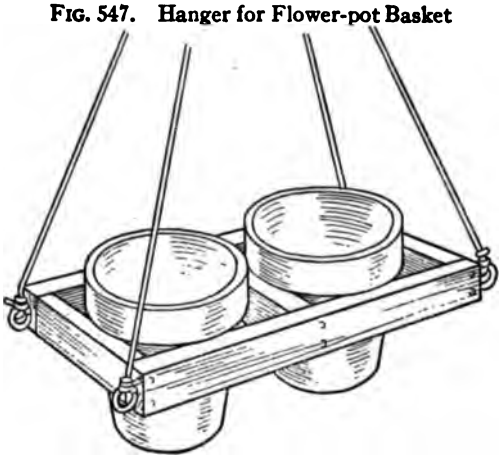


FIG. 548. — A Two-pot Basket

nailing the frame strips together, screw screw-eyes into the ends of strips *A* and attach rope or wire hangers to them.

The Box Basket shown in Fig. 550 may be made of a shallow grocery box. All that is necessary to prepare the box, is to reinforce the nailing of boards where they show signs of loosening, and to provide hangers. The best way to provide for hangers, is to nail a pair of strips several inches longer than the width of the box, to the box bottom, as shown at *A* in Fig. 551, and screw screw-eyes into the ends of these cross strips. With the hangers tied to the screw-eyes, the weight of the

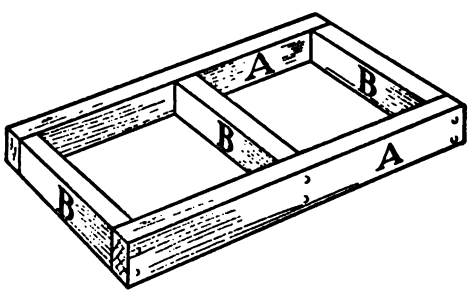


FIG. 549. — Frame to Hold Flower-pots for Basket

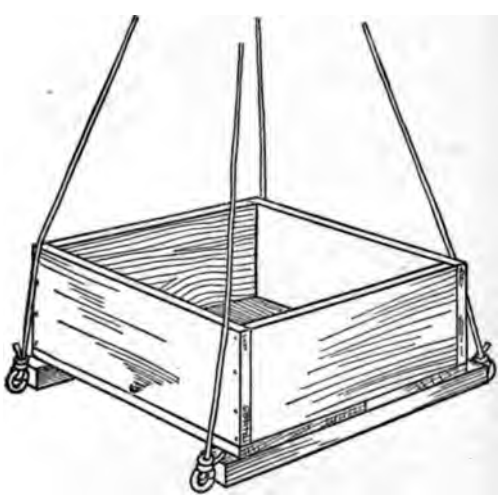


FIG. 550. — A Box Basket

earth-filled box will be borne by strips *A* and no strain will come upon the box-bottom boards.

Figure 552 shows

Another Box Basket, which may be made from either a square or oblong grocery-box. Mark off the center of each side of the box, then prepare four square sticks an inch longer than the box is deep, screw a screw-eye into the end of each, and nail securely to the box sides, one at the center of each side (Fig. 553). Fasten chains to the screw-eyes.

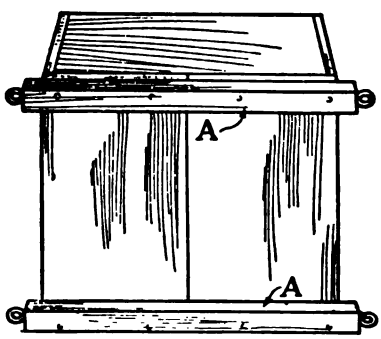


FIG. 551. — The Box Bottom showing Hanger Crosspieces

The Rustic Basket in Fig. 554 has a box foundation (Fig. 555). Screw screw-eyes into the ends of four sticks, to connect hanging chains to, and nail these strips to the box, one inside of each corner.

Select straight pieces of branches to cover the box with. Cut a pair of these for each

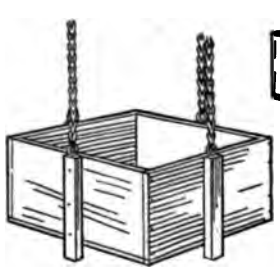


FIG. 552

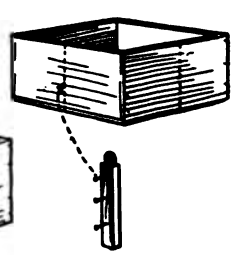


FIG. 553

FIG. 552. — Another Box Basket
FIG. 553. — Detail of Box and Hanger Post

corner 2 inches or so longer than the depth of the box, cut half of the side pieces ½ inch longer than the depth of the box, and the other half 1 inch longer than the depth. Nail the branches to the box

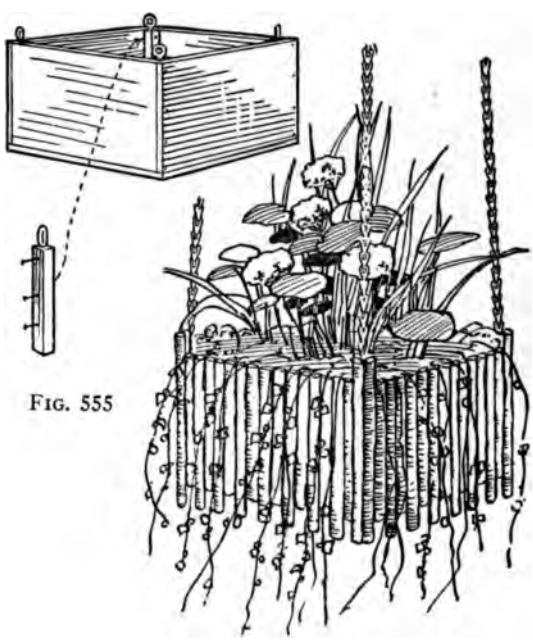


FIG. 555

FIG. 554

FIG. 554. — A Rustic Basket Made of a Box
FIG. 555. — Box Foundation and Detail of Corner Posts

with small nails, first fastening on the corner pieces, then the pieces between, then the bottom pieces.

Flower-boxes for the window or to stand upon the porch balustrade are quite as easy to make as hanging-

baskets. The only difference between the construction of

A Window Flower-box similar to that shown in Fig. 556, and a grocery-box is that the bottom of the flower-box is fitted between the sides and ends, instead

FIG. 556

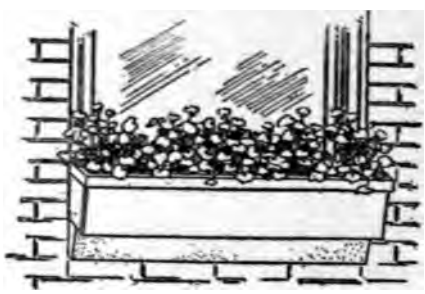


FIG. 557

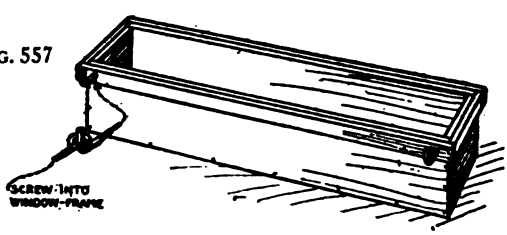


FIG. 556. — A Window Flower-Box
FIG. 557. — Detail of Box and Method of Anchoring It to a Window-Frame

of nailed to the bottom edges, and that a narrow strip is nailed around the top edges. The top band gives the flower-box a pleasing style.

Eight inches is a good width, 6 inches is plenty deep, and the length should be such that the box will extend along the entire width of the window-sill.

A simple method of anchoring the box in position is shown in Fig. 557. Screw a screw-hook into the top band of the box, on the back, near each end, and screw a screw-eye into the window-frame, at each side, in the proper position to receive each screw-hook. Care must be taken to set the flower-box far enough out on the sill so that it will not interfere with the raising of the window-screen.

Bore drain-holes through the box bottom, providing a hole for about every 12 square inches of bottom

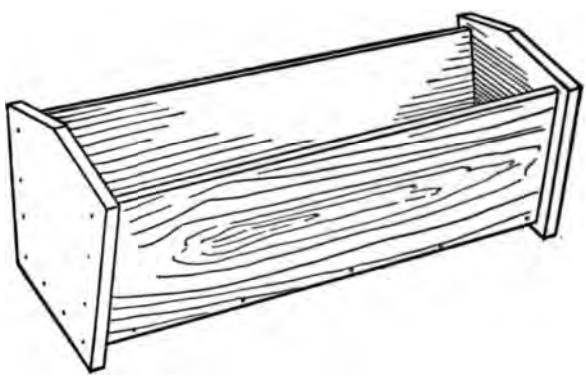


Fig. 558. — A Window or Porch Balustrade Box

surface. The holes should be about ½ inch in diameter. Lay pieces of broken flower-pot over the holes, to keep the earth-filling from getting into them.

The Window or Porch Balustrade Box shown in Fig. 558 breaks away from the straight lines of the grocery-box type, and is of a pleasing design.

The most particular part of the construction of the box is the preparation of the ends (*A*, Fig. 559). In

laying out one of these pieces, first draw a center-line across the board it is to be cut out of, then each side of this line measure off the distances given, and connect the points with straight lines. Be careful to get both sides of the center alike, also both end pieces alike.

The box sides (*B*, Fig. 559) should be cut 7 inches wide by whatever length you want to have the box. Mark off upon the end pieces the positions for the sides, locating them as shown in Fig. 559, then nail with finishing-nails.

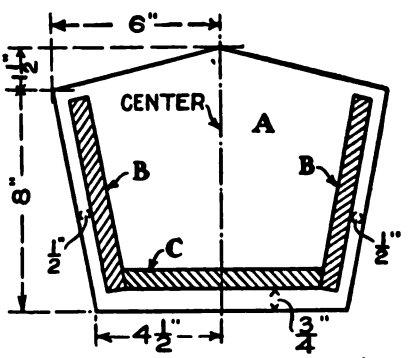


FIG. 559. — Pattern for End Pieces

The bottom board (*C*, Fig. 559) fits between the sides, and its edges must be planed or sawed off on a bevel of the same pitch as that of the box sides. Nail through the sides into the bottom board.

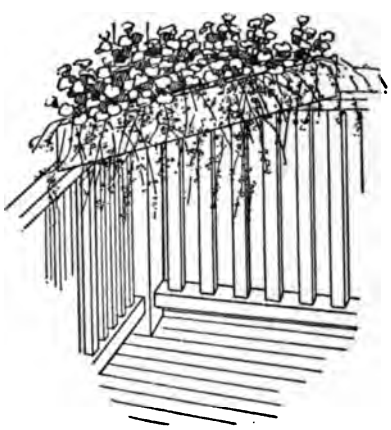
A Corner Box for a Porch Railing, like that shown in Fig. 560, makes a pretty flower garden. Figure 561 shows the completed box, and Fig. 562 how the side pieces are joined. The corner opposite the long side of the box must be cut off as shown, and the piece *C* nailed to the ends of sides *A* and *B*, so the porch corner post will not interfere with sides *A* and *B* standing upon the porch railing. Nail piece *C* to the ends of *A* and *B* (Fig. 562), then saw off its ends even with

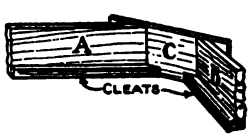
the sides of *A* and *B*. In the same way, nail side *D* to sides *A* and *B*, and then saw off its ends even with the outside face of these sides.

Nail cleats to sides *A*, *B* and *D*, as shown in Fig. 562, then cut the bottom boards to rest upon them, and nail them in place.

The Plant-box shown in Fig. 563 may be made of a grocery box. Figure 564 shows how the corner

FIG. 562





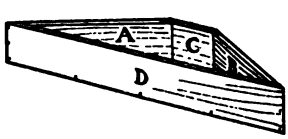


FIG. 560. — A Corner Box for a Porch Railing

FIG. 561

FIG. 561. — The Complete Box.
FIG. 562. — Detail of Corner Construction

strips should be prepared and fastened together. Make them long enough so that the tops will project 1 inch above the top of the box, and the lower ends about 2 inches below the bottom. The upper corners

of the strips can be cut off by means of a chisel. In fastening the corner strips in place, be careful to make the lower projections equal. Figure 565 shows a plan of the box, and a good arrangement for the drain-holes.

FIG. 565

FIG. 564

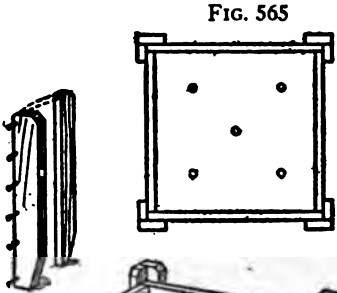


FIG. 563

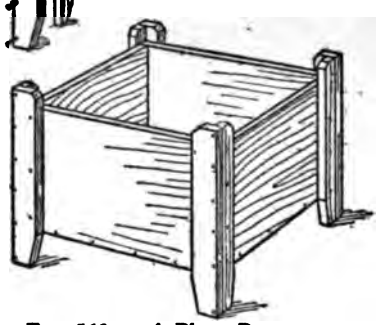


FIG. 563. — A Plant-Box
FIG. 564. — The Corner Strips
FIG. 565. — Plan of Box

Paint the Flower-boxes and the hanging baskets with two coats of oil paint. Medium chrome-green looks well upon boxes, and white is always in good taste. Drive all nail-holes below the surface of the wood, then, after the first coat of paint has been applied and dried, putty all nail-holes, cracks, and joints before applying the second coat.



CHAPTER XXXI

MAY BASKETS

MAKE enough May-baskets, and fill with spring flowers, so that there will be one for each friend. These may be distributed on May-day or hung upon door knobs on May-day eve, as has long been a pretty custom. You will find it lots of fun to make, fill, and present these little tokens of friendship.

It is well to give small bouquets so that your supply of wild flowers will go a long way, and small baskets answer best as receptacles for them. The foundation material can be picked up at home, and a few cents will purchase as much colored tissue-paper for covering them as you will need.

The Cornucopia Basket in Fig. 566 is a dainty holder for wood violets and other small flowers, and its depth makes it a desirable shape for long-stem flowers, also. Figure 567 shows how to roll up a sheet of writing-paper into a cornucopia. Lap and paste the edge of the paper as in Fig. 568, then cover the outside with colored tissue-paper. Gather this into small pleats at the bottom, and slash it to form fringe. Cut a strip of paper 2 inches wide, slash it as shown in Fig. 569 to form fringe, and paste it around the top, allowing

FIG. 567

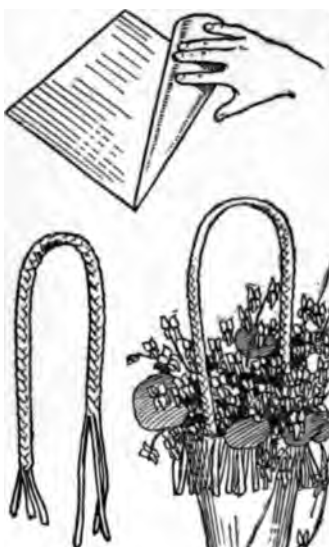


FIG. 568



FIG. 570

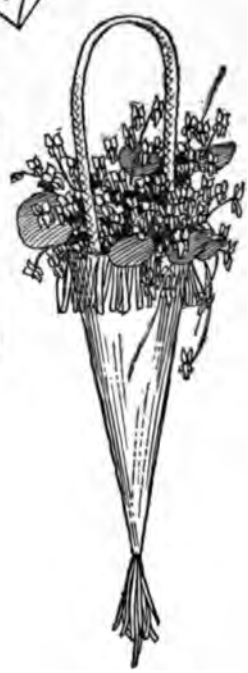




FIG. 569

FIG. 566

FIG. 566. — A Cornucopia May-Basket
FIGS. 567 and 568.—How to roll up the Cornucopia
FIG. 569. — Paper Fringe
FIG. 570. — Handle made of Braided Paper Strips

the fringe to hang down. The basket handle is made of strips of tissue-paper 2 inches wide, rolled lengthwise into long slender tubes, then braided together (Fig. 570). Stitch the ends to the top edge of the cornucopia.

Figure 571 shows a unique form of

Basket Made of a Writing-paper Box. The dotted lines in Fig. 572 indicate how to cut the box ends at their centers, and the dotted line in Fig. 573 indicates how to score the box bottom with a knife, along the center, to provide for telescoping one

FIG. 572 FIG. 573

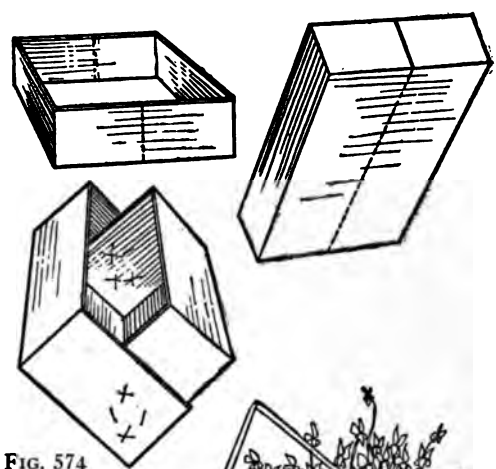


FIG. 574



FIG. 571

FIG. 571. — A May-Basket made of a Writing-paper Box

FIGS. 572 to 574. — How the Box is Cut and Folded

half into the other as in Fig. 574. Stitch the telescoped ends together, then cover the outside of the box with tissue-paper, and attach a ribbon to the corners for a handle.

A berry-box furnishes the material for

The Hooded Basket in Fig. 575. The first thing to do is to cut the bottom of the box in half, diagonally, from corner to corner, as indicated by the dotted line in Fig. 576, and remove one half (Fig. 578). Then prepare a triangular piece of cardboard like that shown in Fig. 577 of the same size as the remaining half of the box bottom, with flaps along the two short edges, and glue the piece between the box sides opposite

the bottom half (Fig. 578). Instead of cardboard, the triangular piece may be cut out of berry-box wood. Cover the box with tissue-paper, or else stain the wood green or brown. Tie ribbon to the box-corner for a handle.

FIG. 576 FIG. 578

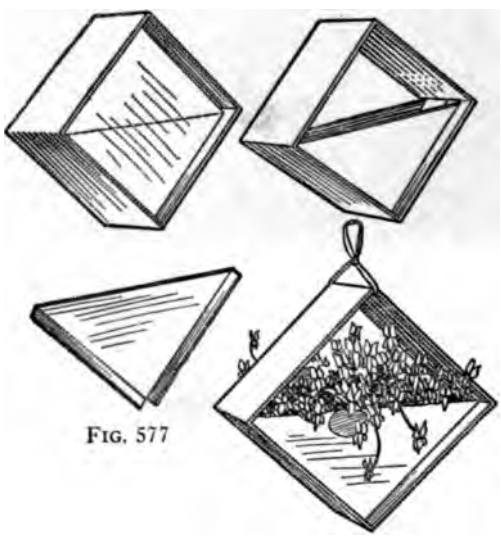


FIG. 577

FIG. 575

FIG. 575. — A Hooded May-Basket
FIGS. 576 to 578. — How a Berry Box is converted into the Basket

The cover from a tin can, with a band of heavy paper or light-weight cardboard about it, provides the foundation for

The Cylindrical Holder shown in Fig. 579. The dotted lines in Fig. 580 show the position of the can

cover. Paste tissue-paper over the outside of the holder, and attach a ribbon handle.

Keep your wild flowers in water until you are ready to use them, so that they will remain fresh. When

Filling the May-baskets, wrap wet tissue-paper or moss around the stem ends, then wrap enough dry paper around this to prevent the moisture from soaking through and staining the outside of the baskets.



FIG. 579. — A Cylindrical Holder

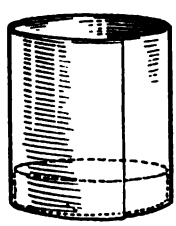
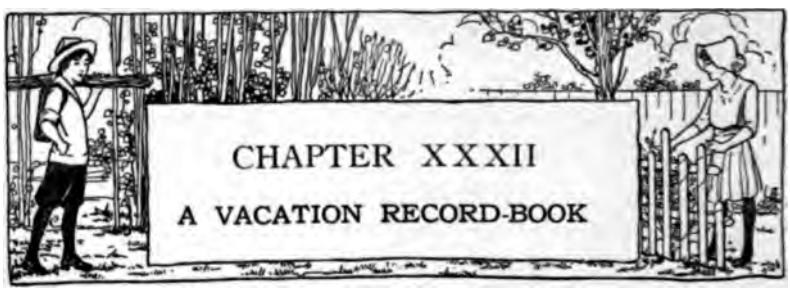


FIG. 580. — A Can Cover forms the Bottom, and the Sides are Cardboard



CHAPTER XXXII

A VACATION RECORD-BOOK

IT is almost as good as living one's summer vacation over again, to read a carefully kept diary of places visited and things done, and not only during the coming year, but years from now when you have grown to womanhood will you treasure these notes. Try my suggestion this summer, and you will make it a custom to keep a vacation diary hereafter.

Any note-book will serve the purpose of a vacation diary, but I would suggest that you make

A Loose-leaf Record-book like that in Fig. 581, which will permit the addition of pages from year to year.

Make the cover of whatever shape and size you want, but I would suggest a width of 14 inches and a height of 8 inches. Cardboard from boxes may be used for the covers. Figure 582 shows the back cover (*A*) and the front cover (*B*).

Cut these of equal size, then cut a strip ¾ of an inch wide from the left-hand end of the front cover (*C*, Figs. 582 and 583), fold over it a strip of drilling 2½ inches wide (*D*, Figs. 582 and 583), and glue this

drilling to the cardboard strip; then glue the projecting edges of the drilling both to the upper and lower surfaces of cover *B*. Punch three holes through this hinged stub, and punch three holes in corresponding positions through back cover *A*.

Buy Manila wrapping-paper from your grocer for

The Loose Leaves, and cut the paper into sheets of the right size so that when placed between the covers,

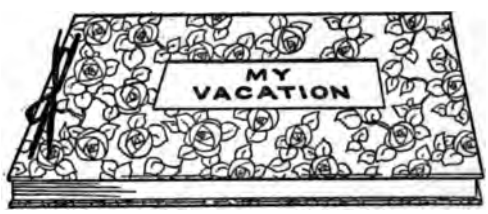


FIG. 581. — A Loose-leaf Record-Book

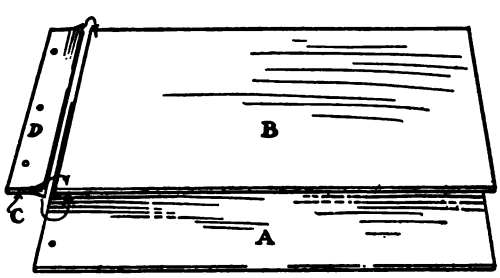


FIG. 582. — The Covers, and Stub Hinge for Upper Cover

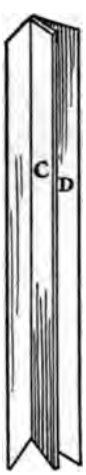


FIG. 583. — The Stub Hinge for Upper Cover

the covers will project ¼ inch beyond the upper, lower, and right-hand edges. With the point of a knife, carefully punch holes through the leaves. If

you live near a printing shop, you can probably get the punching done there at a small cost.

Use a Shoe-string Lacing. Run this down through the center hole of the front cover, then along the back of the back cover to one of the end holes, up through that hole, across the front cover to the opposite end hole, down through that hole, along the back cover to the center hole, up through that hole, and tie the two ends together in a bow, (over the part of the string that extends from one end-hole to the other, Fig. 581).

Make a Diary of the First Part of the book. These pages may be lettered ahead of time, with the days and dates, but because some days will furnish many notes, and others only a few, it is better to insert the day and date, daily.

Besides the diary, plan to include

Field Notes. If you are a careful observer, scarcely a day will pass when you will not make a discovery worth recording.

Figure 584 shows a specimen page of

Spatterwork Leaf Records. Have you ever made spatterwork pictures? It is very interesting, and a collection of spatterwork pictures of leaves and flowers is a collection to be proud of. You could easily fill several volumes with such pictures and then have a record only half-way complete, but by crowding several pictures upon a page, as shown in Fig. 584, you will be able to get a fair-sized collection within the limits of a portion of your record-book.

There is not much to learn about spatterwork. You will need a bottle of writing or drawing ink, a pen-knife, and a stiff bristle brush — a worn-out tooth-brush, one of the small brushes supplied with bottles of glue or mucilage, or a small oil-paint brush.

To make a Spatterwork Picture of a leaf, place the leaf upon a page of the record-book, and smooth out its edges perfectly flat. Then, to protect all portions

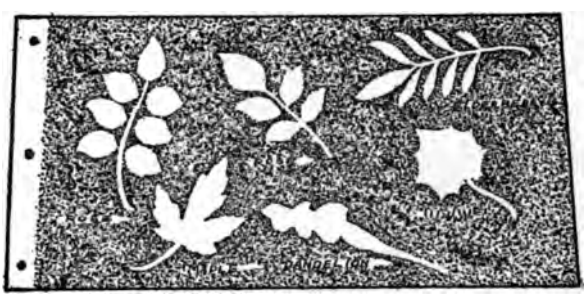


FIG. 584. — Make Spatterwork Leaf Records, like this

of the page except that which you are going to spatter, cover them with pieces of paper, lapping the paper at the corners, and weighting it with coins, as indicated in Fig. 586. A space of ½ inch around each leaf is enough to allow for the spatterwork background. With the leaf in position, and the protection sheets placed around it as directed, dip the brush into the ink, and draw the blade of the pen-knife across the ends of the bristles, as shown in Fig. 586, holding the brush in such a position that the ink on the bristles will spatter over the edges of the leaf. Move the

brush from side to side so that the spattering will be even. When the ink has dried, lift the leaf from the page, and you will find a white silhouette of it upon a stippled background.

Another way to record the shapes of leaves and flowers is by making pages of

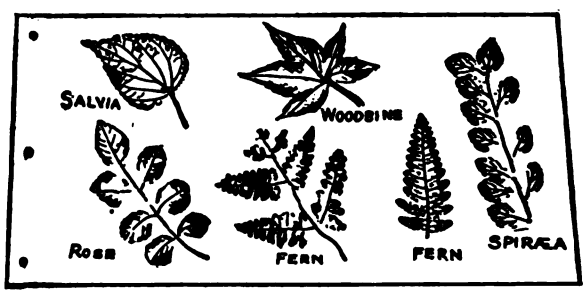


FIG. 585. — Make Leaf Impressions like this, with Thinned Printer's Ink

Leaf Impressions, like that shown in Fig. 585. For working material, you will need a saucer, a piece of cotton rolled into a ball and covered with a piece of silk or soft cotton cloth, and about half a teaspoonful of printer's ink, or half a teaspoonful of shoe-paste mixed with a quarter of that amount of lard. Any friendly printer will give you the small quantity of ink required.

Spread a little of the printer's ink or shoe-paste mixture upon the saucer. Then, taking the ball of cotton covered with silk or cotton cloth, pat the surface of the saucer until the ink or shoe-paste is spread evenly over the center. All will then be ready for

Making the Impressions. Place the side of the leaf on which the veins are most prominent, upon the inked surface of the saucer. Then lay a blotter, or piece of heavy paper, over the leaf, and press down upon every part to bring the leaf into perfect contact with the inked saucer. If you own a photograph print-roller, you can get good results by using it to roll down the leaf.

After pressing or rolling down the leaf, remove it carefully, and place the inked surface upon a page of your record-book; then press or roll every portion of it as before, and remove it. In removing the leaf, be careful to lift it straight up without sliding it sideways, in order not to blur the impression. The impression should be perfect, with the delicate veins shown extended in all directions, each accurately located. The impressions shown in Fig. 585 were made in this way.



FIG. 586. — Making Spatterwork Pictures

Flower Impressions are more difficult to make than those of leaves, because flowers are more delicate to handle; yet there are many kinds of which splendid impressions can be made.

Impressions in Color can be made by using printer's inks of different colors, or by combining a colorless shoe-paste with oil-colors; and when the leaves assume their variegated colors of autumn, you can try your hand at making impressions in Nature's colors.

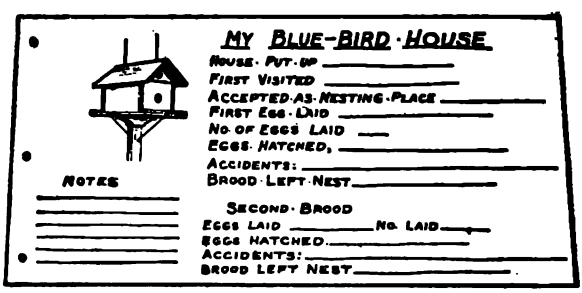


FIG. 587. — Keep a Record of your Bird-House Tenants, like this

Letter the Names of all leaves and flowers, below or to one side of the impressions, to make your record complete.

Don't forget to

Keep a Record of your Bird-House Tenants. You could not keep a more interesting record. Figure 587 suggests a lay-out for a bird-house page, which you can copy as presented or alter to include your own ideas.

Have you ever made

A Record of Wild Birds? This is the best way to



ROBIN PHOTOS. FROM MR. HALL'S VACATION RECORD BOOK



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TILDEN FOUNDATIONS

become acquainted with different species. Note carefully the size, the colors, and the calls and song of

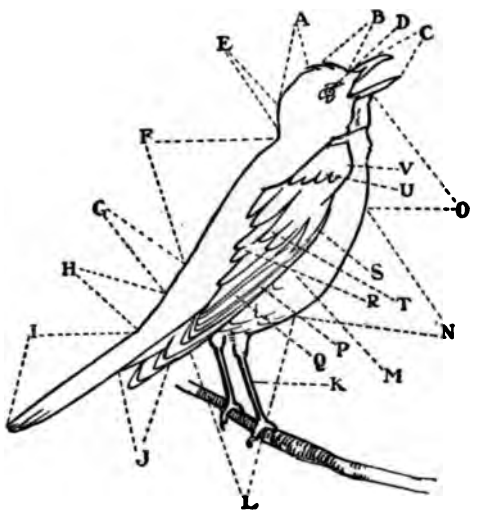


FIG. 588—Make a Sketch like this in your Record-Book, with Parts Lettered, and Key Printed below it.

every bird you see, when you are in the fields or woods, then determine what birds they are as soon as you can refer to a bird book or make inquiry of a well-informed bird lover; and when you have studied also the char-

acteristics of these birds you will possess an invaluable fund of bird lore.

A Bird Chart like the one of the robin shown in Fig. 588, placed in your field note-book, will aid you in making bird notes quickly. With the parts of the body lettered the same as they are upon the sketch I have shown, and a key to the letters placed beneath, as shown, it is but necessary to jot down the letters, and write the colors observed, opposite the letters. You might make a tracing of the printed sketch, and transfer this upon a page of your vacation record-book.



CHAPTER XXXIII

A HERBARIUM

You have gathered wild flowers, but I wonder how many of you own a herbarium, or collection of varieties, with a record of the common and botanical names, location where found, kind of soil, and other data. It is a splendid way to acquaint one's self with the flowers, plants, and ferns discovered while tramping through the woods, and across fields, and, if you haven't yet started a collection, I hope you will do so when the first opportunity offers. The work is fascinating, and your collection is something of which you will never tire, and will always be proud to show to friends.

A Letter-file for Specimens (Fig. 589) is better than a book, and the heavy light-yellow wrapping-paper used in butcher-shops, cut into sheets of the right size to slip easily into the letter-file, is good material to mount specimens on. This paper is cheap, and you can buy as much as you want, when you want it. By placing the sheets loose in the file, specimens may be arranged according to their genus, and rearranged as new varieties are added.

In addition to the herbarium file, you must have

A Press. Don't use books for the purpose. Make a regular press. Figures 590 and 591 show a practical press easy to construct, and Fig. 592 shows a working diagram. Make base-board *A* (Fig. 592) 12 inches wide and 18 inches long, and nail the three cross strips *B* to the under side, one at each end, and one in the center; and make the upper board *C* (Fig. 593) 12 inches square. Cut the hinge blocks *D* 6 inches long, ¾ inch thick and 1¼ inches wide, and bore a screw-hole through each exactly ½ inch from each end. By means of these blocks, hinge board *C* to *A*, being careful to locate the blocks in the same relative positions so that they will work together.



FIG. 589. — Letter-file for Specimens

Mount a flat-iron upon board *C*. Drive nails into board *C* (Fig. 593) at the sides of the iron, so the heads will come down upon the base, as shown in Fig. 590, then provide a loose pin to drop in a hole at the flat end (Fig. 593). The iron can then be slipped between the nails, endwise, and locked in place by dropping the loose nail into its hole. Doubled pieces of cardboard

beneath the nail-heads will hold the iron better than the heads would alone. The flatiron not only provides weight for pressing, but also serves as a handle for opening the press. Nail block *E* (Fig. 592) to one end of board *A* as a stop for board *C* to strike against when the press is opened.



FIG. 590.—The Herbarium Press. Open, with Specimen Sheets in Position for Pressing.

Newspaper is good **Material for Placing Specimens between for Pressing,** as it is porous enough to absorb sap. A half-dozen or so sheets are not too many to place beneath and above the specimen. These should be replaced with fresh papers about once a day, until the specimens have thoroughly dried and are ready for removal. Several sheets of specimens may be pressed at a time, one placed over another.

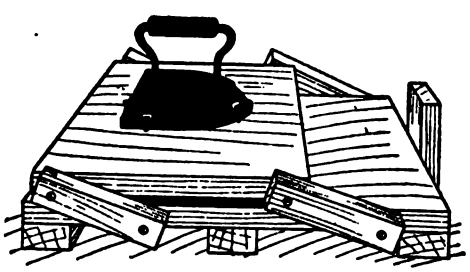


FIG. 591. — Pressing.

FIG. 593.

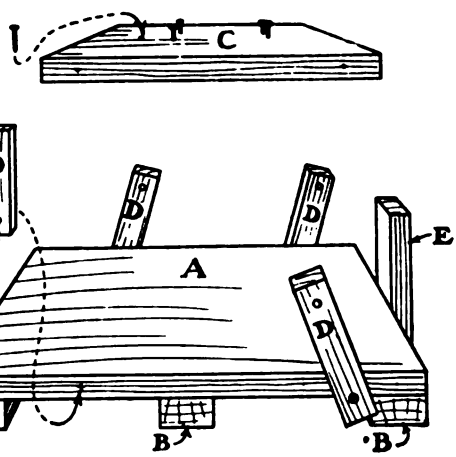


FIG. 592.

FIG. 592. — Base for Herbarium Press
FIG. 593. — Top

To Transfer a Specimen to the Herbarium Sheets put a daub of glue upon the under side, then lay the specimen upon the sheet in as natural a position as possible. Narrow strips of court-plaster lapped over the thick portions of stems will help hold them securely.

Filing Specimens. The name, place of finding, and other data, may be written or printed in one corner of each sheet as indicated in Fig. 594. To simplify the finding of specimens, glue

Index Tabs to the edges of your sheets in the same way that letter-file indexes are attached, on which to letter the name of each genus.



FIG. 594. — Arrange Specimens like this, with Name and other Data printed or written on the Sheet



CHAPTER XXXIV

CAMP FIRE GIRLS
CAMP CRAFT

GIRLS used to spend summer afternoons embroidering, on the shaded front porch, where they received their friends and sipped iced drinks. Times have changed. Active girls of to-day have not abandoned needle-work; they take their sewing-bags to lake or field or woods, and revel there in the saucy glances of the sun. They do not envy their brothers, the Boy Scouts; they join the

Camp Fire Girls, and gain honors and discipline from a happy combination of work and play at home and out-of-doors.

The aim of the Camp Fire Girls, in general, is summed up in

The Law of the Council Fire, which every girl must pledge herself to follow, upon joining the organization. This law is: Seek Beauty; Give Service; Pursue Knowledge; Be Trustworthy; Hold on to Health; Glorify Work; Be Happy.

The Watchword, "Wohelo," is made from the first letters of the words Work, Health and Love

To Become a Camp Fire Girl it is but necessary to learn the Law of the Council Fire, and express an earn-

est and constant desire to obey it. But no girl is satisfied until she has successively attained the ranks of Wood Gatherer, Fire Maker, and Torch Bearer*. The first of these,

Wood Gatherer, is attained only after the fulfilment of the following requirements: Be a member of a Camp Fire for at least two months; Attend at least six weekly meetings and two ceremonial meetings; Select a name and symbol; Make a headband; Have the ceremonial dress; Win in addition at least ten elective "honors." The rank of

Fire Maker requires the fulfilment of the following: A girl must be at least thirteen years old; she must help prepare and serve two meals for meetings of the Camp Fire; she must mend a pair of stockings, a knitted under-garment, and hem at least one yard of hem on some necessary article; she must keep a written, classified account of all money received and spent for at least one month; she must tie a square knot five times in succession correctly and without hesitation; she must sleep with open windows or out of doors for at least one month and take an average of at least one-half hour outdoor exercise for the same length of time, as well as abstain from chewing-gum, candy, soda and commercially manufactured beverages between meals for one month; she must name the causes of infant

*The Camp Fire Girls Illustrated Manual tells how to organize a Camp Fire, describes fully the official costumes, ranks, and emblems, and tells how a girl can become a member. This booklet will be sent, postpaid, for 25 cents. Address Camp Fire Girls, 461 Fourth Avenue, New York City.



CAMP FIRE GIRLS' GRAND COUNCIL



Photos, Courtesy of Camp Fire Girls

AN INDOOR CAMP FIRE COUNCIL



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mortality in summer, and tell to what extent and how it has been reduced in one community; she must know what to do in the following emergencies: Clothing on fire; person in deep water who cannot swim, in summer or fallen through ice, in winter; open cut; frosted foot; fainting; and know the principles of elementary bandaging and how to use a surgeon's plaster.

She must also know the laws of hygiene, diet, cleanliness, physical regularity, with the simple preventives of constipation through exercise, right food and regularity; the normal requirements of sleep and out-of-door exercise; suitable dress for cold or wet weather; the proper care of the feet and the right selection of footwear for school and tramping. She must also know "those intimate, personal things which careful mothers tell to their daughters."

Nor is this the end of the list. She must commit to memory one good poem or song; know the career of some woman who has done much for country or state; and know and sing all of the words of the national anthem. And, in addition, she must have won twenty elective honors in

The Seven Crafts of Camp Fire — Home Craft; Health Craft; Camp Craft; Hand Craft; Nature Lore; Business; Patriotism. Several hundred honor attainments are listed in the Manual.

Before attaining the rank of

Torch Bearer, a girl must be at least fifteen years of age. She must have proven herself trustworthy,

unselfish, a good leader, and a good team-worker. To show powers of steady leadership is the most important qualification, because she is to be an assistant to the Guardian.

Little girls, between six and twelve years of age, are given membership as

Blue Birds. Often these are younger sisters of Camp Fire Girls, who want to "belong." They are under the direct care and leadership of the Torch Bearers, and are by them taught to do all of the things of Camp Fire that it is possible for little girls to do, together with simple craft-work, which children love and which is the foundation for more difficult tasks. They are also taught the laws of hygiene and health.

The leader of the Camp Fire group, is known as the

Guardian of the Fire. She is responsible for the conduct of the girls of the group, and for maintaining Camp Fire standards. A Guardian must be at least twenty-one years of age.

The symbolic rites around the Council Fire, and the wholesome companionship of other girls occupied with the same tasks and the same pleasures means fun and frolic, and mutual helpfulness for every girl who joins this modern organization.

The fields, the woods, and the mountains are just as much a place for girls as for boys, though strange as it seems, only lately have

Hiking and Camping for girls been popularized to any great extent. Now, through the groups of Camp Fire

Girls organized in every part of the country, girls are being encouraged and taught to be at home in the wilds, in much the same manner that boys are trained.

Light-weight Clothing is the most desirable for a girl who plans a hiking or camping trip, and woolen garments are better than cotton, because they absorb perspiration. Wear bloomers, a middy, woolen stockings, and low-heeled shoes, a felt hat, and carry along a sweater.

Keep the Feet in Good Condition. This is of paramount importance to one who plans to do much walking. If there is a tendency towards blisters, a strip of adhesive plaster put on smoothly over the portion of the foot having that tendency will prevent blistering. Wash the feet frequently; if you can, take a second pair of shoes with you, change from one pair to the other when your feet begin to tire, and your feet will feel refreshed. Keeping the shoes greased well prevents the leather from hardening. When they have become wet, dry them thoroughly before putting them on again, but never dry them over a fire, because that will ruin the leather. Bits of torn newspaper stuffed into the toes of the shoes, and replaced from time to time with fresh bits, will quickly absorb water that has got inside.

There should be a knapsack to strap upon your back, in which to carry lunch, a kodak, a field note-book, and other articles useful on a "hike," so that with these

articles disposed of, your hands will be free. Figure 595 shows

A Home-made Knapsack that is easy to make. This one has been patterned after the knapsack used in the regular army. In Figs. 596 to 598 you will find the details for making it.



FIG. 595. — A Home-Made Knapsack

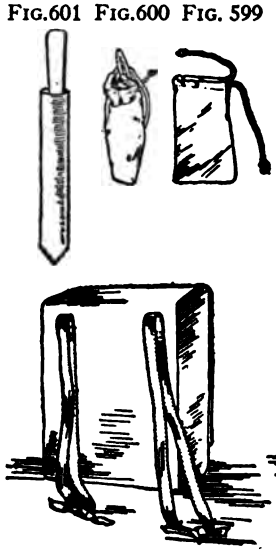
For Material, use brown or white canvas, khaki, or denim. Figure 598 shows the pattern for cutting the front, back, ends, and flap, with the necessary dimensions. The dotted lines indicate the folding. Sew with very stout linen thread, and to prevent fraying, bind the edges with tape or braid.

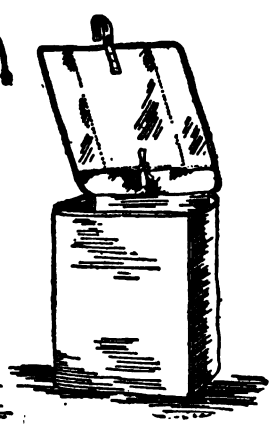
The pocket upon the inside of the flap may be divided into three compartments by making rows of stitching. Fasten tapes to the flap and pocket-front of the large pocket so they may be tied to keep the pocket shut. A doubled tape, with button holes worked in it should be stitched to the end of the flap of the knapsack, and a button should be sewed to the under side of the bottom of the knapsack to button it on to (Fig. 596).

Figure 597 shows the shoulder-straps, made of strips of canvas, doubled, and stitched along the edges to make them firm. Cut the straps about 2 inches wide, and 30

inches long, and stitch them at their centers to the back of the knapsack, in the positions shown in Fig. 597. The ends of the straps can be sewed together when you

FIG.601 FIG.600 FIG. 599





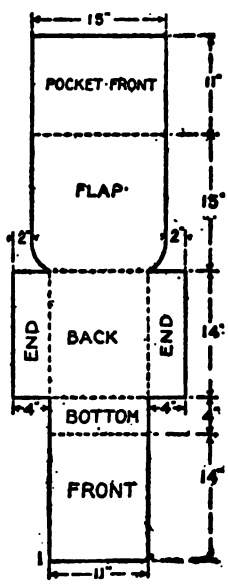


FIG. 597 FIG. 596 FIG. 598

FIG. 596. — Front View of Knapsack with Flap Opened
FIG. 597. — Back View of Knapsack with Flap Closed
FIG. 598. — Pattern for Cutting the Cloth
FIGS. 599 and 600. — Duffle-Bags
FIG. 601. — Knife Sheath

have determined the right length to reach over your shoulders and down under your arms; or they may be tied as shown, so they can be readjusted at any time to fit over heavy clothing.

Duffle-bags. Figures 599 and 600 show two small duffle-bags of the form with which knapsacks are usually supplied. They are provided to hold small articles, and keep them from scattering. Army knapsacks have four of these little bags, measuring from 3 to 5 inches. To make one, take a piece of light-weight canvas or drilling, of twice the width desired for the finished bag, fold in half, and stitch along one side and across the bottom; then make a hem across the top for a draw-string, for which a piece of heavy cord, knotted at the ends, should be used.

Knife-sheaths should be made as shown in **Fig. 601**, of leather or canvas.

Packing the Knapsack. For a short "hike," it is not likely that you will carry much more than a package of lunch, unless you add a tin plate, knife and fork, and cup. Then, the matter of packing is not important, except that the articles that might rattle together should be wrapped. But if you take a small outfit along, it is important to pack carefully, in order that everything can be put in, and that the weight may be evenly balanced. Distribute the heavy articles evenly, and place the solid and pointed articles in the front so they will not rub against your back.

Losing One's Way, occasionally, is to be expected, but generally there is a way to find one's bearings if the girl keeps her head. Do not become panicky. Sit down, and coolly try to study out where you made the wrong turn in the trail. A stream, a road, or an old



SALUTING THE DAWN



Photos. Courtesy of Camp Fire Girls

MAKING FIRE WITHOUT MATCHES

Mrs. Luther H. Gulick, Founder of Camp Fire Girls



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landmark will often help you out. When tramping over new territory, however, it is best to

Blaze Your Trail as you go, in order that it will be easy to retrace your steps upon your return. One excellent way of "blazing a trail" is the bent-over twig method shown in Figs. 602 to 604. Bend the twigs over every few hundred yards, bending the tops in the direction opposite to that which you are going, to

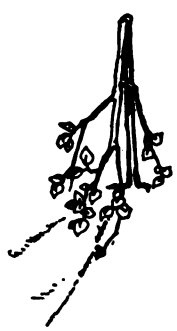


FIG. 602. — Straight Ahead.



FIG. 603. — Turn to the Right.



FIG. 604. — Turn to the Left.

indicate "straight ahead" (Fig. 602), bending them to the left, to indicate "Turn to the Right," and bending them to the right to indicate "Turn to the Left"! Your followers, then, will know exactly what turns to make. On your return, you will easily discover the marks because the under or lighter side of the leaves of the broken branches will be toward you.

You can determine the points of the compass by using

Your Wrist-watch as a Compass, wherever you happen to be, provided the sun is shining. Hold the wrist so that the hour-hand of the watch points toward the sun (Fig. 605); then the point half-way between the hour hand and figure "12" will be in a line with

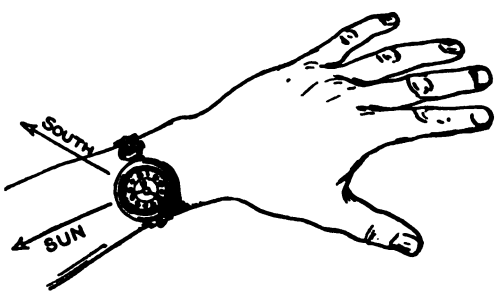


FIG. 605. — Using Your Wrist-Watch for a Compass. Hold the wrist so that the hour-hand of the watch points towards the sun; then half-way between the hour hand and twelve o'clock is South.

"South." Having located "South," you will know the other points as well, of course.

If you lose your way at night, you will have

The Stars as Guides, if they are shining, for as you probably know, the star at the end of the Little Dipper's handle is the Pole Star (North Star) (Fig. 606), and that is almost due North. If you have difficulty in locating the Little Dipper, you will find the Big Dipper easily, and an imaginary line drawn through the two stars forming the front of the Big Dipper will intersect with the Pole Star (Fig. 606).

It is well to know

How to Fold a Paper Cup, because often when upon a "hike" you will come upon good drinking-water, and discover that you have forgotten to bring a cup. A paper cup is extremely simple to fold. Figure 607 shows the steps in the process. Tear a piece of paper so that it will be 8 or 9 inches square (Step 1), fold the

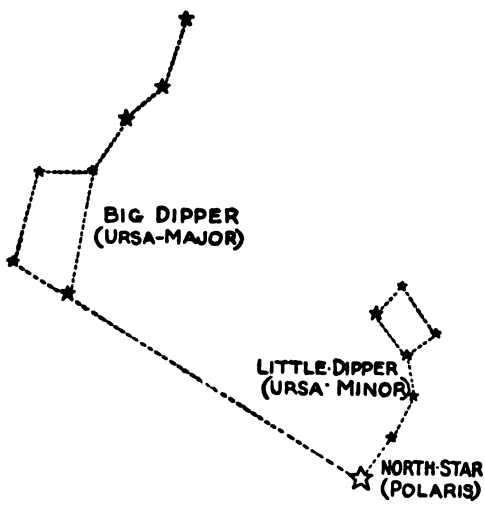


FIG. 606. — The Stars Will Guide You at Night. The Star at the End of the Handle of the Little Dipper is the North Star. An Imaginary Line Drawn through the Two Stars Forming the Front of the Big Dipper will intersect with the North Star

corner *A* over to the opposite corner (Step 2), fold corner *B* over to the position shown in Step 3, fold corner *C* over to the position shown in Step 4, turn down the upper corner *D* as in Step 5, and turn down corner *E* on the opposite side (Step 6), spread the upper edges apart, and the cup is completed.

If you wish to make a tent, you will not find the work difficult. Eight-ounce or ten-ounce duck should

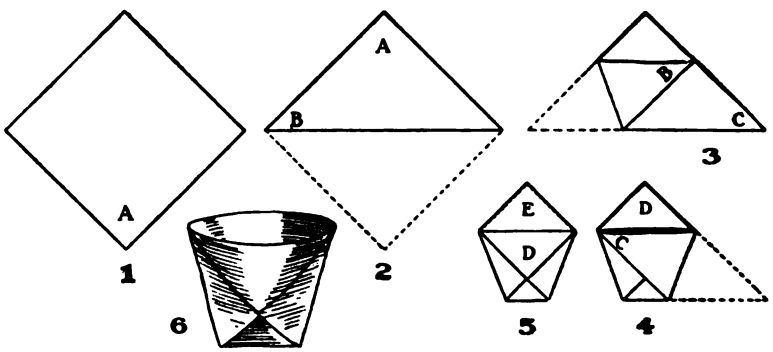


FIG. 607. — How to Fold a Paper Drinking-Cup

be purchased for the tent material, and about thirty yards will be needed for

Making an "A" Tent of the size shown upon the diagram (Fig. 608). Figure 609 shows a diagram of the completed tent as it would appear when spread out flat upon the ground, with dimensions for cutting the lengths of canvas. Strips *A*, *B*, *C* and *D* are of equal length, and strips *E*, *G*, *J* and *K* are of one shape and size, as are also the triangular pieces *F*, *H*, *I*, and *L*, and strips *M* and *N*. Lap each strip a full 1 inch over the edge of the adjoining pieces, as indicated by the dotted lines on the diagram, and sew each seam near the edges with a double row of stitching.

After all the lengths have been cut and sewed together, turn back the outside edges 1 inch, as indi-

cated by dotted lines, to finish them off and reinforce them.

Buy one dozen 1-inch harness rings for the ridge and guy-rope eyelets, set two in the canvas at the ends of the ridge, and one at the end of each of the side seams, and buttonhole-stitch them in place. The canvas should be reinforced with a square patch in the places where the eyelets are to be set in, in the ridge. Sew canvas loops and straps to the flaps, in the locations



FIG. 608. — An "A" Tent

indicated, and tie the guy-ropes through the eyelets provided for them.

Figures 610 to 612 show details for

The Ridge-pole and Uprights. These should be cut out of pieces 1¾ inches square, which may be ripped out of a piece of 2-by-4. Cut the uprights about 5 feet 10 inches long, which will allow for setting the ends 3 inches into the ground, and cut the ridge-pole 9 feet

5 inches long. Round the top of the ridge-pole as in Fig. 612. Drive a piece of ¾-inch or ½-inch iron rod into one end of each upright (Fig. 611), and bore two holes, ⅛ inch larger than the rods, through the ridge-pole in the proper positions for the rods to fit in (Fig. 612). A piece of tin bent around the ends of the pole, as in Fig. 612, will prevent the rods from splitting them.

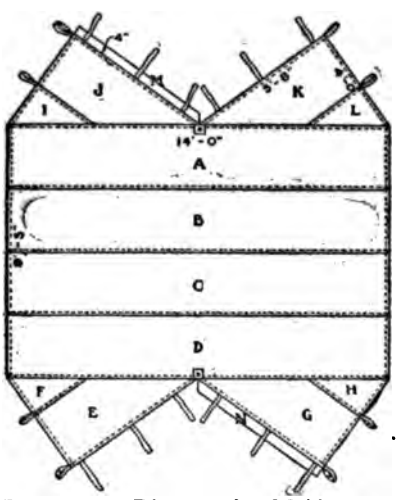


FIG. 609. — Diagram for Making an "A" Tent, 7 feet by 9 feet 5 inches.

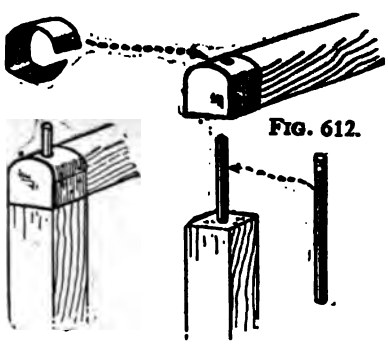


FIG. 612.

FIG. 610

FIG. 611

FIG. 610.—Connection of Ridge-Pole with Upright
FIG. 611. — End of Upright
FIG. 612. — End of Ridge-Pole

If you have difficulty in preparing the ridge-pole and uprights, ask your father or brother to make them for you.

Fourteen Tent-stakes are required, and these should be cut at home to save delay in pitching the tent after you reach your camping ground.

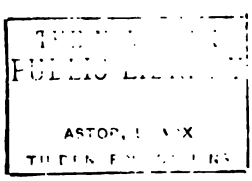


A Wall Tent, Eight Feet by Ten Feet, with Fly



A Wooden Floor adds to the Comforts of the Tent




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Pitch your Tent upon a level spot, close to the water supply, if possible, and dig a little trench around it to catch surface rain-water; make a couple of outlets from the trench so that the water will drain away.

A Tent Ground-cloth of waterproof material should be laid upon the ground and lapped up around the sides of the tent, to prevent dampness from penetrating your bedding, if you make up your bed upon the ground. And you should also provide

A Pine-bough Mattress upon which to spread your blankets. Cut a number of boughs, and lop off enough of the tips to form a good-sized pile of twigs. Then carry these twigs to your tent and, beginning at the proper point for the head of the bed, place a row of the twigs upon the ground-cloth with tips toward the back of the tent. Next, place another layer of the twigs over these, and lap the tips over the butt ends of the first row, and continue to lay row after row in this manner, which is just the way in which shingles on a roof are lapped, until you have reached the foot of the bed. The degree of softness of this mattress will depend upon the care with which the twigs are placed and their thick butt-ends are concealed.

If nights are cold where you intend to camp, take along

A Sleeping-bag. By folding over your blanket along the center, lengthwise, then sewing it along the side and across the bottom, a very satisfactory bag can be made. With the top of the bag pulled snugly

around your neck, there is no possibility for the cold air to reach your body.

The upper photograph of the two opposite page 340 shows

A Wall-tent. This is much roomier than an "A" tent of the same ground dimensions. The lower photograph shows a wall-tent with a wooden floor. You can have a floor built for a few dollars, and if you camp out for any length of time, it will be a worthwhile investment, because of the comfort it will give



FIG. 613. — The Backwoodsman's Type of Camp Fireplace

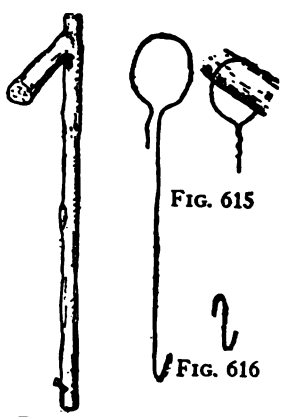


FIG. 614

FIG. 615

FIG. 616

FIG. 614. — Stick Pot-hook
FIG. 615. — Wire Pot-hook
FIG. 616. — Extension Hook

you. With a wooden floor, you will want a cot to sleep upon.

The trouble experienced in

Making An Open Fire for cooking generally arises

from getting too large a fire, that is all blaze and smoke, instead of a small fire of hot coals. Figure 613 shows

A Backwoodsman's Fireplace, which is a satisfactory scheme for a girls' camp. Place two logs alongside of one another, about 6 inches apart at one end and 12 inches apart at the other; then drive a forked branch into the ground at each end, and rest a pole in the forks from which to hang pot-hooks. The space between the logs is for the fireplace, and with the wide opening turned toward the wind a splendid draft is obtained.

Pot-hooks may be made from forked sticks, with nails driven into them near the lower ends (Fig. 614), or out of pieces of heavy wire bent into hooks at one end and loops at the other end (Fig. 615), the loops being made large enough so that they will slide back and

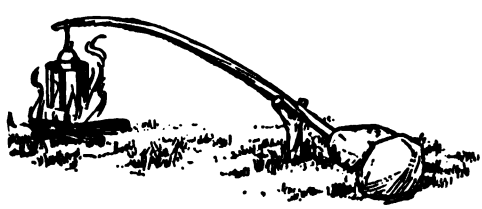


FIG. 617. — A Camp-Fire Crane

forth on the horizontal pole. The pot-hooks may be made short enough to accommodate the largest pot you have, then lengthened to suit the small utensils by means of S-shaped extension hooks bent out of wire (Fig. 616).

A Camp-fire Crane like that in Fig. 617 furnishes

another simple method of suspending food over a fire. A sapling can be bent over for the purpose, or a branch can be supported as shown in the illustration.

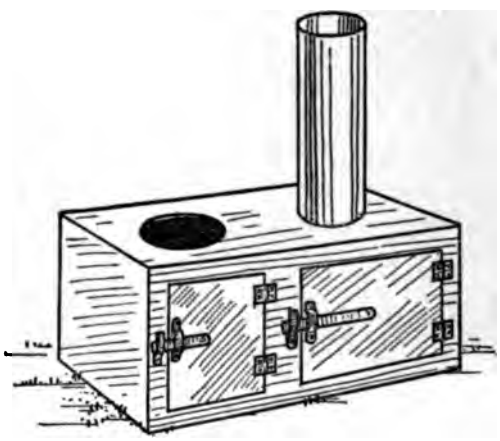


FIG. 618. — A Sheet-Iron Camp Stove

A Sheet-iron Camp Stove like that shown in Fig. 618 makes camp cooking easier, and its great convenience repays one for taking it along when possible.

The Camp Fireless-cooker (Fig. 619) makes it possible to cook supper during the day, without any member of the camping party remaining in camp to tend a fire. To make a fireless-cooker, dig a pit about 2 feet square and 2 feet deep, and line the bottom and sides with stones (Fig. 620). Then batten together several boards to form a cover that will slip down into the hole (Figs. 619 and 621), and fasten four pieces of wire to it for handles (Fig. 621).

Your pot of beans, kettle of potatoes, oatmeal, mush, or other food, must be started upon your camp fire. While it is cooking, build a good fire in your cooker-pit, and allow this to burn down into hot embers. Then quickly transfer your cooking utensil, when ready,

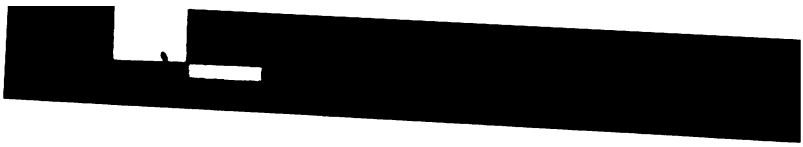


A Nature Lesson



Photos. Courtesy of Camp Fire Girls

Camp Fire Girls Gathering Fagots



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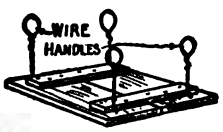


FIG. 621

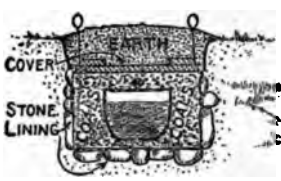


FIG. 619



FIG. 620

FIG. 619. — Section through the Camp Fireless-Cooker
FIG. 620. — The Cooker Pit
FIG. 621. — The Cooker Cover



FIG. 622. — A Handy Camp Wash-Shelf



FIG. 623. — A Camp Broom



FIG. 624. — A Camp Shovel

into the cooker, raking a hole in the embers for it to be set in, and fill in around and over the utensil with coals from your large fireplace. Fit the wooden cover over the top, and fill the space between this and the ground level with earth to make the insulation as perfect as possible.

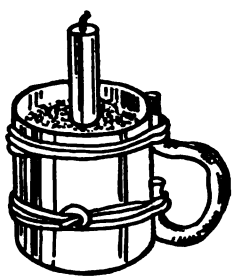


FIG. 625.— A Camp Candle-Stick

A Wash-shelf bracketed to a tree-trunk, to hold a wash-basin and soap, is a convenience not to be overlooked (Fig. 622). Fasten a mirror above the basin, and drive a few nails into the tree trunk for towels and wash-cloths.

A Camp Broom is necessary to keep the camp tidy, and Fig. 623 shows how easily one may be made with a stick for a handle, and evergreen boughs bound to one end with wire or cord. Lacking boughs, use long grasses.

A Camp Shovel will come in handy for many small jobs, and Fig. 624 shows how to make a small one by fastening a piece of tin in a slot in the end of a stick.

Figure 625 shows how to make

A Camp Candle-stick out of an empty tin can, by binding a piece of twisted green branch to the side with wire or cord, for a handle. Fill the can with sand or earth, and stick a candle into the center of this.

Make a Mosquito Head-net like the one the girl in Fig. 626 is wearing, to take along with you to the woods. Figure 627 shows how a long strip of mosquito-netting is prepared with a draw-string run through a



FIG. 626. — A Mosquito Head-Net

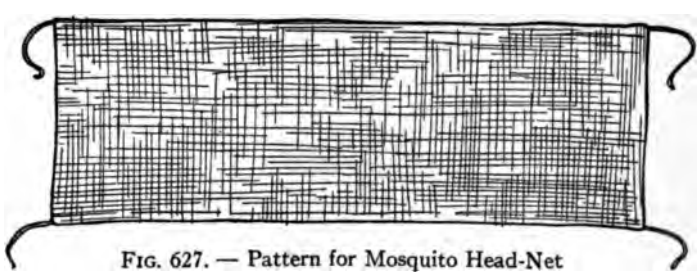
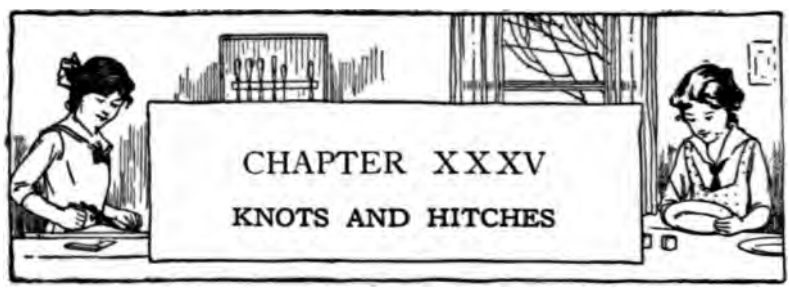


FIG. 627. — Pattern for Mosquito Head-Net

hem along the upper and lower edges, for the head-net. With the upper edge of the net brought around the rim of your hat, and fastened by tying the ends of the draw-string, and the lower edge brought down below your collar and tied around your neck, so that the netting hangs away from your face, you will appreciate the comforts that this home-made net furnishes.



CHAPTER XXXV

KNOTS AND HITCHES

ANY girl can tie a knot, but there are safe knots and unsafe knots, and if she doesn't know the correct method of tying, nine times out of ten she will make the knot incorrectly. A single misplacement of a rope-end will make all the difference in the world between a good and a bad knot.

So many activities in which you will be engaged require the tying of knots, that I am showing in this chapter a few of the common forms of knots and hitches with which every girl ought to be acquainted. If you will take two pieces of rope and work out each of these as I describe its formation, you will more readily learn how to make them.

A Rope Has Three Parts — the *bight* or loop (*L*, Fig. 628), the *standing part* or long end (*S*, Fig. 628), and the *end*, usually the short end used in forming the knot or hitch (*E*, Fig. 628).

The Overhand Knot (Fig. 629) enters into the formation of so many other knots that we will begin with it. Make a loop (*L*) in a rope, pass the end (*E*) through the loop, and draw up the loop into a knot. That is all there is to the overhand knot.

To join two pieces of rope with

The Square Knot (Fig. 630), first twist the ends (*E*, *E*) as shown in Step 1, then form an Overhand Knot on top as shown in Step 2. Notice the difference between the positions of the rope ends in this knot and those in

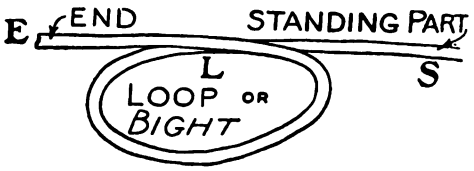


FIG. 628. — Parts of a Rope

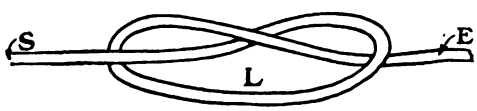


FIG. 629. — The Overhand Knot

The Granny Knot (Fig. 631). In the former the ends and standing parts pass out on the same side of the loops, while in the Granny Knot they pass out on opposite sides. The Square Knot will hold, the Granny Knot will slip.

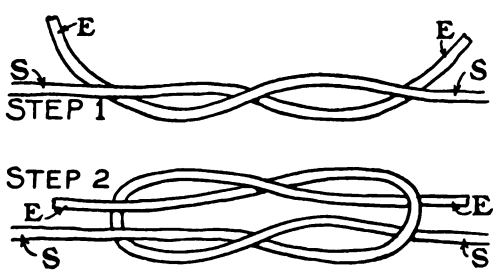


FIG. 630. — The Square Knot

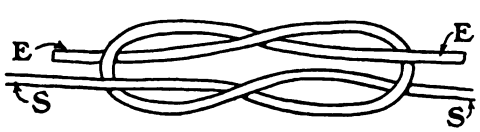


FIG. 631. — The Granny Knot

The Figure Eight Knot (Fig. 632). Make a loop (*L*), then pass the end (*E*) around the standing part (*S*), and out through the loop.

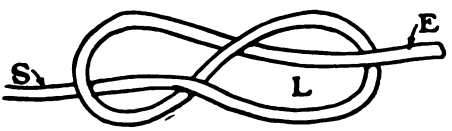


FIG. 632. — Figure Eight Knot

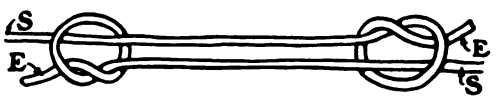


FIG. 633. — The Fisherman's Knot

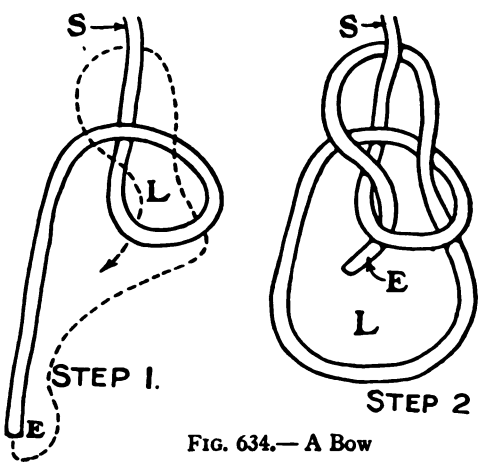


FIG. 634.— A Bow

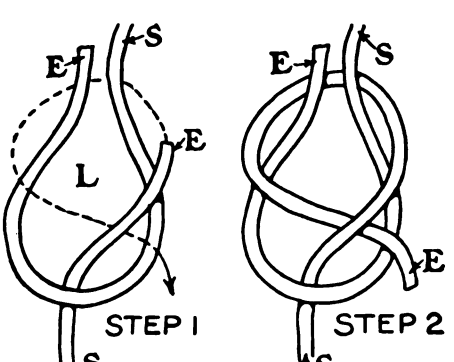


FIG. 635. — A Sheet Bend

The Fisherman's Knot (Fig. 633) is a secure knot and one that is easily loosed. In joining two ropes by this means, tie an Overhand Knot in each rope end (*E*), forming it over the standing part (*S*) of the other rope, then pull the knots together. The fisherman's knot can be loosed by pulling on the ends (*E*).

The Bowline (Fig. 634) will neither slip nor draw tight. First, form a small loop in the rope (*L*, Step 1), then bring the end (*E*) up through

the loop, around the standing part (*S*), and down through the loop (Step 2).

The Sheet Bend (Fig. 635) is used to join two ropes. Make a loop with one rope end (*L*, Step 1), then pass the end of the other rope through the loop, around the standing part, and out between the two standing parts (Step 2).

The Blackwall Hitch (Fig. 636). This is used in making fast a rope to a hook. Try it on a clothes-post



FIG. 636. — A Blackwall Hitch

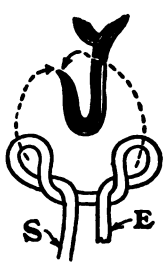


FIG. 637. — A Catspaw

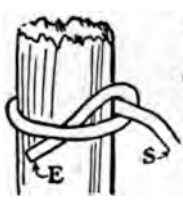


FIG. 638. — A Half-Hitch



FIG. 639. — A Timber Hitch

hook. Simply make a turn around the back of the hook with the end (*E*), and cross the end with the standing part (*S*). Pulling upon the standing part will jam the rope upon end *E* and prevent its slipping.

The Catspaw (Fig. 637) provides another way of hitching a rope-end to a hook. Form two loops as shown, and throw these over the hook.

The Half-Hitch (Fig. 638). This is a dependable

method of attaching a rope to a timber when the pull on the standing part (*S*) will be steady.

The Timber Hitch (Fig. 639). This is like the Half-Hitch, except that the end (*E*) is tucked in several times, which makes a more secure hitch than the Half-Hitch under conditions when the pull on the standing part is not steady.



FIG. 640. — A Timber Hitch and Half-Hitch

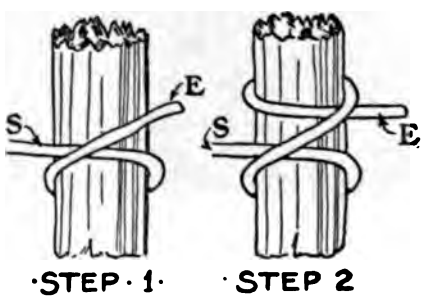


FIG. 641. — A Clove Hitch Made Around a Post

The Timber Hitch and Half-Hitch (Fig. 640) is a combination used for fastening a rope to timbers for hoisting.

The Clove Hitch (Fig. 641) is secure under every condition. Pass the rope around a pole or post, with the end (*E*) crossing the standing part (*S*), as shown in Step 1; then pass the end around a second time and slip it under this last turn, as shown in Step 2. When you make a Clove Hitch near the top of a post, you can form the two loops and throw them over the post, as indicated in Fig. 642.

The Marling Hitch (Fig. 643) is used for making fast a rope to a timber that is to be dragged or hoisted. It can be put on and removed quickly.

The Sheepshank (Fig. 644) provides a quick way of shortening a rope without cutting it. Double the

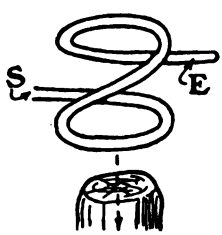


FIG. 642. — A Clove-Hitch Thrown over a Post

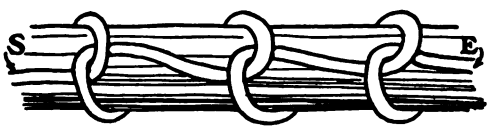


FIG. 643. — A Marling Hitch

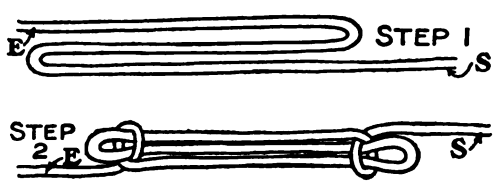


FIG. 644. — A Sheepshank

rope on itself as shown in Step 1, once, twice, or three times, according to how much you wish to shorten it; then with the end (*E*) take a Half-Hitch over the end of the doubled portion, and with the standing part (*S*) take a Half-Hitch over the other end of the doubled portion.

As you practise the making of knots and hitches, you will think of many ways of applying them in every-day work and play.



CHAPTER XXXVI

A HOME-MADE AMERICAN FLAG

YOU cannot imagine how much pride you will take in our flag after you have made one with your own hands and seen it floating aloft in the breeze. There is no prettier emblem, and no girl can gaze upon the American flag an instant without feeling thrilled through and through, but somehow the home-made flag upon which you can look and say, "I made it all myself," means a great deal more to you than a flag bought at a store.

Flag-making is within the ability of any girl who is handy with the needle. A medium-sized flag requires little more work than a small one, and for this reason I have shown in Fig. 645 the diagram for a flag nearly 6 feet in length. It will be easy to alter the dimensions if you want a flag of different length.

There have been no

Standardized Proportions for the flag, until a recent order issued from the White House, occasioned by the existence of flags of many different proportions put an official approval upon the following: Hoist (width) of flag, 1; fly (length) of flag, 1.9; hoist of union, 7/13; fly of union, .76, width of each stripe, 1/13.

As the above proportions have been worked out in the terms of the hoist measurement, and the unit 1 has been taken to represent the hoist measurement, you will see that, having determined the width of flag that you want, it is only necessary to multiply each of the given proportions by that desired width, in order to get the right dimensions for your flag.

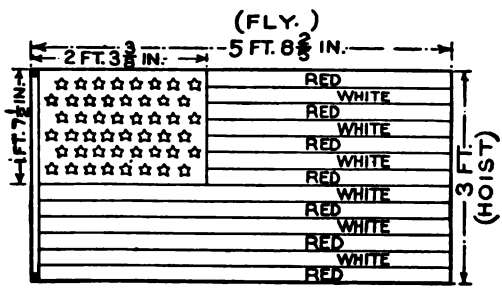


FIG. 645. — Diagram of Properly Proportioned American Flag

For example, a width of 3 feet was decided upon for the flag illustrated, and to get the other dimensions, the standardized proportions were multiplied by 3.

Red, White, and Blue Bunting can be purchased at any dry-goods store. The face measurement of the stripes will be approximately 2¾ inches in the width, but an additional ¼ inch must be allowed for turning the edges, which will make the material 3 inches wide. With every measurement before you, it will be a simple matter to figure out the amount of bunting required. Use muslin for the stars.

Figures 646 and 647 show how

The Seams between the Stripes are made, with the edges of the cloth turned in and sewed down with a double row of stitching, to make a neat finish on both sides of the flag. Cut the top and bottom red stripes from the selvedge of the cloth, so that their outer edge will not have to be finished off.

Join the Blue Field to the stripes in the same way that you joined the stripes. Cut it so that there will be a selvedge along the top long edge.

FIG. 648 Fig. 647 FIG. 646

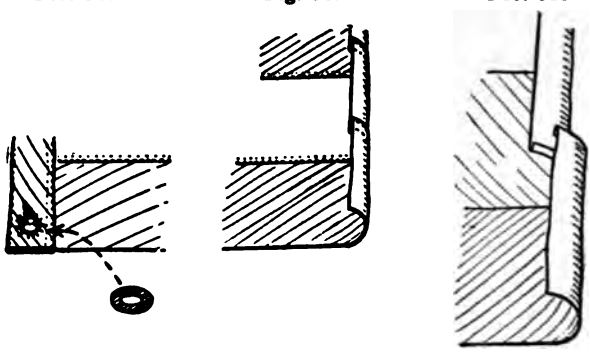


FIG. 648.—Canvas Binding for Staff Edge, and Grommet for Attachment of Rope

FIGS. 646 and 647. — How the Edges of the Stripes are Turned in and Sewed with a Double Row of Stitching

With the field and stripes assembled, make

A Canvas Binding for the Staff Edge, doubling the canvas over the edge of the field and ends of the stripes, turning in its edges, and sewing with a double row of stitching (Fig. 648).

Buy a pair of large iron washers at the hardware store for

Grommets, and sew these in holes cut through the

FIG. 649

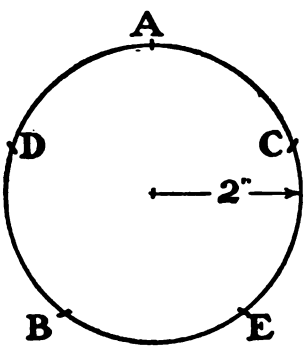
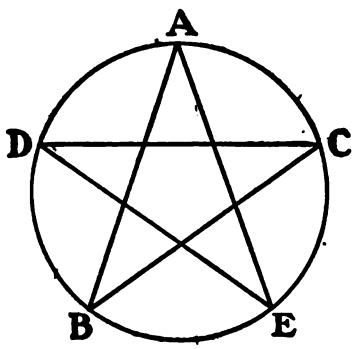


FIG. 650



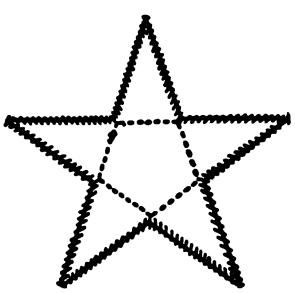


FIG. 652

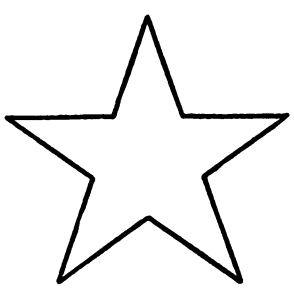


FIG. 651

FIGS. 649 to 651. — How to Cut the Five-Pointed Stars.
FIG. 652. — How to Stitch the Stars to the Field

doubled binding edge, one at each corner, to tie ropes to for fastening the flag to a pole.

Cutting the Stars, and sewing them neatly on to the

field, requires care and patience. For the forty-eight stars needed you must cut twice as many, because they must be fastened upon both sides of the field.

To make

A Pattern for the Five-pointed Stars, first describe a circle 4 inches in diameter upon a piece of cardboard, and divide the circumference into five equal parts (Fig. 649); then connect the five division points with straight lines (Fig. 650), cut out the piece (Fig. 651), and carefully mark out the ninety-six stars required, upon muslin, using the cardboard star to mark around. Locate the centers for the stars by ruling lines horizontally and vertically across the field, so the positions will be the same as shown in Fig. 645. Then, in

Sewing the Stars in Place, stitch down the edges, and stitch around the centers, as indicated in Fig. 652.

A round rug-pole, nicely painted, with a brass curtain-pole ball screwed into one end, makes

The Flag-pole shown in Fig. 653. Screw screw-eyes into the pole at *A* and at *B*, through which to run the ropes for hoisting the flag, and screw a third screw-eye at

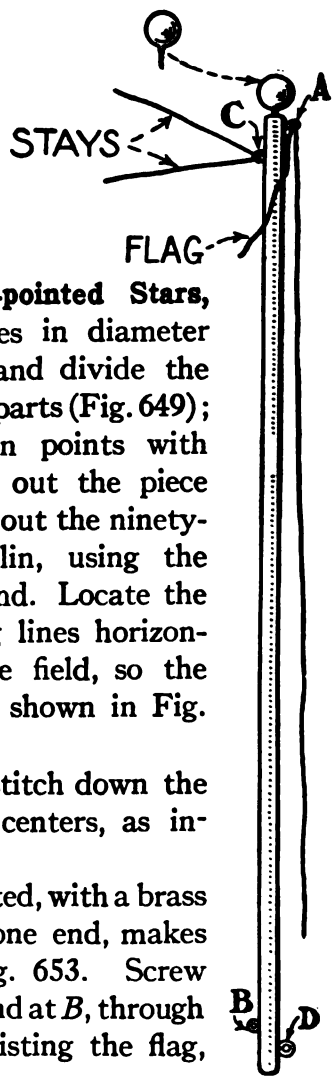


FIG. 653. — How to Rig up a Rug-Pole for a Flag-Pole

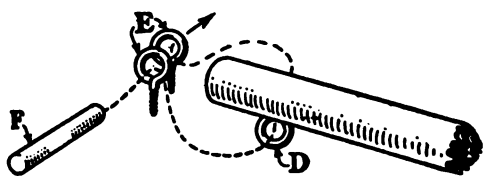


FIG. 654. — Detail of Window-Sill Connection for End of Flag-Pole.

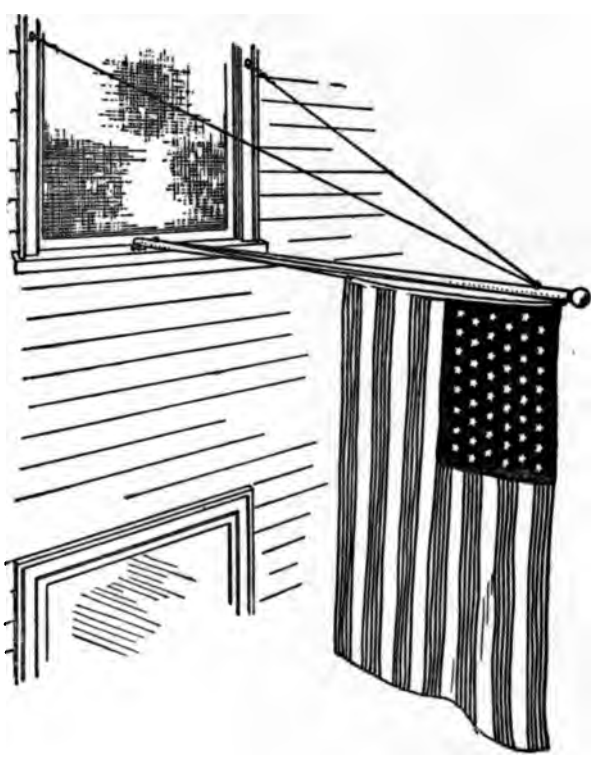


FIG. 655. — How to Support the Flag from the Window-Sill

C to attach the supporting stays to, and a fourth at *D* for

Fastening the Pole to a Window-sill or other ledge. Screw-eye *D* should be large, and two other screw-eyes of the same size (*E*, Fig. 654) should be screwed into the window-sill, and a peg (*F*) should be cut to slip through the screw-eyes. By placing screw-eye *D* between screw-eyes *E*, and slipping peg *F* through all three, the end of the pole will be held securely. But before the pole-end is pinned in place,

The Stays shown in Fig. 655 must be tied to screw-eye *C* (Fig. 653) and to screw-eyes screwed into the sides of the window, as shown in Fig. 655, to carry the weight of the pole. Use clothes-line for the stays.



CHAPTER XXXVII

PLAY-STORES

WHAT girl does not like to play "store"? You not only can play "store" with a lemonade stand, but can earn spending-money selling the ice-cold lemonade; and you will find it more fun selling something real to real customers, than just "pretending."

On a warm summer day, with prospects in view of a thriving business in lemonade, it is foolish to waste half of the morning in planning and building an elaborate counter from which to dispense this drink with the guaranteed cooling qualities. But, on the other hand, it is the best kind of business judgment to make a counter that will have a neat appearance and be so inviting to passers-by that they will purchase a drink without hesitation.

An Attractive Lemonade-stand can be built in as little time as any other kind, as I am about to show you. Two chairs with straight backs, two grocery boxes of equal size, and an umbrella, are the principal requirements for the little stand shown in Fig. 656.

It does not matter much in what state of repair the chairs are; they can be made to serve your purpose. The seats may be broken through; that makes no difference because they are to be concealed by the boxes



FIG. 656. — An Attractive Lemonade-Stand Can be Built as quickly as any other kind

used for the counter-top. If a leg is broken, as is often the case with a discarded chair, you can easily bind a stick to that corner of the chair to prop it up, while, if a back is broken, it can be mended well enough by binding a long stick up and down, or across it.

To Build the Stand, place the chairs back to back, as shown in Fig. 657, and bind together the pairs of legs,

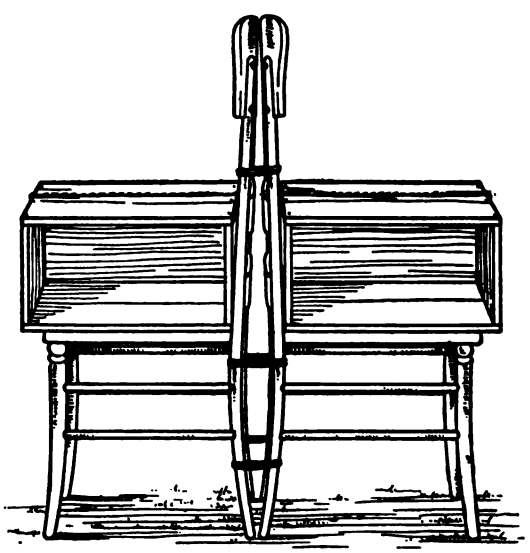


FIG. 657. — Two Chairs from the Foundation for the Lemonade-Stand.

also the backs, in several places with wrapping-twine. Then stand the grocery-boxes on their sides on the chair seats, so that their open tops will come at the back of the counter, and bind them to the chair by passing

a rope around their ends, over their tops, and down underneath the chair seats, tying them in a secure knot.

The Umbrella Top is fastened between the chair backs as shown in Fig. 658, with the end of the handle extending down to about the center of the backs, and bound with wrapping-twine or rope passed around it in the criss-cross fashion indicated in Fig. 658. Tie in two places as shown, and pull the twine taut so that the handle will be held securely.

Figure 656 suggests how to

Decorate the Umbrella Top with a small flag bound to the iron ferrule at the end of the umbrella handle, and with smaller flags tied to the ends of the umbrella ribs.

Cover the Counter Top with a piece of oilcloth, white cloth, or shelf-paper, and secure cloth or paper with which to conceal the front of the counter boxes and the chair legs, and fasten it to hang down to the ground as shown in Fig. 656. A piece of cardboard, with "Ice-Cold Lemonade" lettered upon it, may be prepared to conceal the space between the chair backs, as shown in the illustration.

Keep your Lemonade-Stand Neat. To do so, be careful not to allow spilt lemonade to remain upon the counter top. If you use an oilcloth covering, it will be a simple matter to keep a clean, dry counter. If you have a cloth or paper covered counter, place extra pieces of paper or cloth beneath the tumblers, and change these as often as they become stained.

A very good counter for

A Play Store may be made in the simple manner shown in Figs. 659 and 660. Chairs are best for the end supports of the counter, but if you can find two grocery-boxes about 30 inches high, these will do. The illustrations show chair supports, because these will probably be easiest to get. As the chair seats will not be

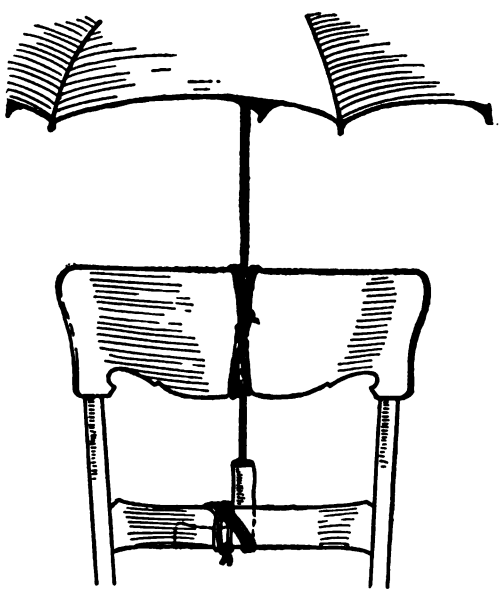


FIG. 658.— How the Umbrella Top is Supported on the Chair Backs

high enough to rest the counter board upon, you must place a small box upon each seat to make it of the right height.

If you cannot find

A Board for the Counter-top, probably you can borrow one of the extra dining-table boards, or the ironing-board. Another board of equal length to that used for the top, placed across the chair seats, beneath the small boxes, will make a good shelf, and by turning the small boxes so their open ends will be towards the



FIG. 659. — Play Store-Keeping is Great Fun for a Summer's Day

back of the counter, and placing short pieces of board across the chair rounds, as shown in Fig. 660, you will have two cupboards of three shelves each in which to keep stock.

The Canopy above the counter is really not necessary, but I think that every girl will want one, because it makes the store much neater. For the corner supports,

you may use broom-handles, short curtain-poles, and any other sticks that you can find. Bind them to the chair back with string.

For the Canopy Covering get a large enough piece of cloth to extend over the four corner uprights, and hang

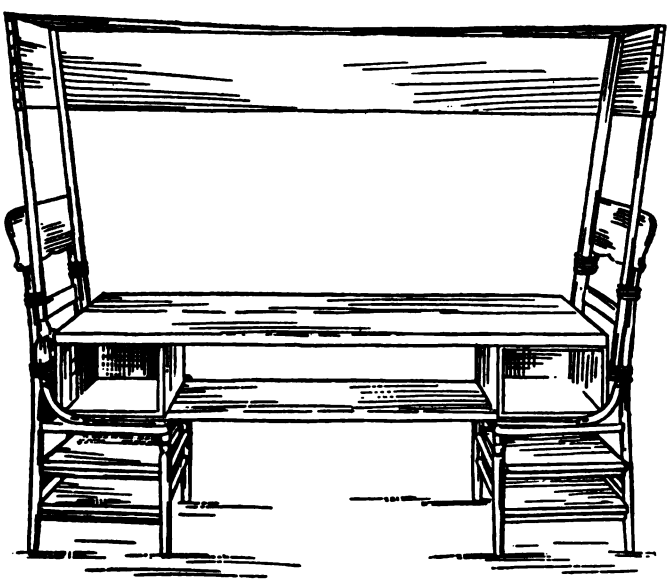


FIG. 660. — The Counter and the Canopy Framework are Supported on Chairs

down across the front and ends to form a band 8 or 10 inches wide. Tack the cloth to the corner uprights.

Enclose the Front and Ends of the counter with cloth or heavy wrapping-paper.

Of course, your store must have

A Set of Scale-balances. Figure 661 shows a set that

is very easily made. The base is a large spool, and into the center hole of this spool a rubber-tipped pencil is slipped for the center support (Fig. 662). Cut the top cross strips from the cover of a cardboard box, making them 10 inches long (Fig. 663). Cut the ends and center as shown and pierce a pin-hole through the center. Figure 662 shows how the strips are fastened each side of the eraser of the pencil, by



FIG. 663. — Cut Two Strips like this for the Balance Beam

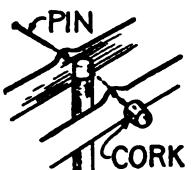


FIG. 664. — Detail of Weighing Tray



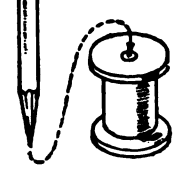


FIG. 662. — Detail of Base and Center Support

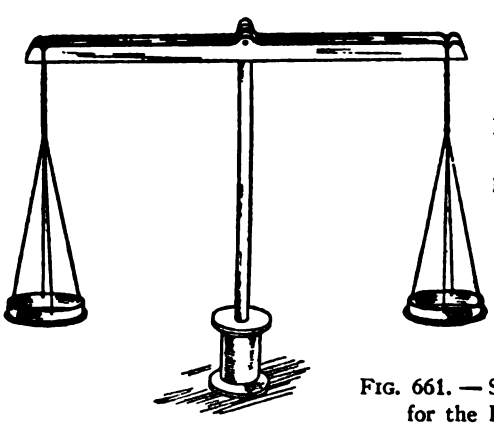


FIG. 661. — Scale-Balances for the Play Store

means of a pin pushed through them and through the eraser; also, how a small cork is pushed on to the point of the pin, so there will be no danger of its injuring you.

The Weighing Trays are made of pill-box covers of equal size. Pierce four holes through the rim of each cover, and, after running a thread through each hole, bring the upper ends together, knot them 3 inches above the tray, and form a loop 2 inches above the knot to slip over the notched ends of the top crosspieces.

Weights for the scales may be made of the small collar-buttons returned in laundered shirts by the laundry, but lacking these, almost any kind of buttons will do.



CHAPTER XXXVIII

PLAY-HOUSES

EVERY girl cannot own a play-house with boarded sides, shingled roof, windows, and a door hung on hinges, perhaps — to build one would be too great a task for the average girl, though I have known of its being done, but she may have a pretty little play tent, tepee, or brush hut, that will do nearly as well to play housekeeping in, by carrying out the ideas which are described in this chapter.

The Umbrella Play-tent, shown in Fig. 665 requires a large umbrella for the top. This makes a pleasing dome-shaped roof which gives the tent a touch of elegance. It will not injure an umbrella in the least to use it for the tent; still, if you can find an old one that is not badly broken, it may be well to take it, because there might be such a thing as some one's piercing it with a pointed stick, or breaking it in some other way; then, too, by using an umbrella that has been discarded, it will not be necessary to take down the tent on rainy days when every available umbrella is needed. A chair is required to support the umbrella handle, several sheets or old draperies are necessary for the wall covering, and some clothes-line or heavy wrapping-twine will be needed for braces.

The tent may be placed in the back yard, on the porch, or in the play room. The first thing to do is to

Fasten the Umbrella-handle to the Chair-back, by strapping it to the cross bars with heavy twine in the manner illustrated in Fig. 666. Tie the handle securely so that it will hold the umbrella perfectly upright.



FIG. 665. — An Umbrella Play-Tent

The Twine Braces for the walls are fastened to the tips of the umbrella ribs, and the best way to attach them is by using a needle and thread and sewing each to the little eye in a tip. The lower ends of the

braces should be tied to stakes driven into the ground, if the tent is placed in the yard, or to carpet-tacks, thumb-tacks, or wall push-pins, driven into the floor, if the tent is placed upon a porch or in a playroom.



FIG. 666. — How the Umbrella is Supported on a Chair-Back

To make the tent wider at its bottom than at its top, the braces should slant away from the umbrella as shown in the illustration. Twenty inches is a sufficient distance for the braces to slant. To get the right position for the stakes or tacks, first allow the

braces to hang straight to the ground, or floor; then measure 20 inches away from the points where the braces touch the ground or floor.

The Cloth Covering of the sides of the tent may be pinned to the edge of the umbrella, and to the braces. Figure 665 shows how the covering opens on one side, and how one brace is omitted, to provide for the doorway.

Make a Cupboard out of the lower portion of the chair support, by enclosing the legs on three sides



FIG. 667. — How the Chair Legs may be Enclosed to Form a Cupboard

with cloth, as shown in Fig. 667, and placing boards across the chair-rounds for shelves. This will be an excellent cupboard to keep dishes in, and the chair seat will make a good table top.

The Tepees shown in Fig. 668 will afford lots of fun when your friends come to play with you. Each can have a tepee of her own, and with them grouped as in the illustration you will have a picturesque Indian encampment. The tepees are made entirely of newspapers.

FIG. 670



FIG. 669

FIGS. 669 and 670. — The Paper Tube Poles.

FIG. 672



FIG. 671

FIGS. 671 and 672. — The Paper Tube Sticks.

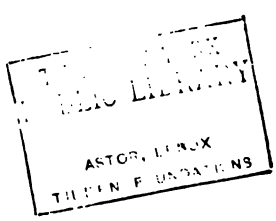
The Tepee Framework consists of six poles built up of newspaper. Figures 669 and 670 show how to prepare

The Paper Poles. Lap and paste together the edges of two sheets of newspaper as shown in Fig. 669, then cover these sheets with a coat of paste, lay two other sheets of newspaper exactly over them, and coat them with paste. Then, starting at one edge, turn the paper upon itself from end to end, and roll it up into a tube, or pole. The tubes will flatten on account of being soaked with paste, but by rolling them back and forth it will be easy to round out these



FIG. 668.—A PLAY INDIAN VILLAGE WITH NEWSPAPER TEPEES AND KETTLE TRIPOD.




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flattened portions. Place the tube poles upon a flat surface to dry, so that they will remain straight and not become bow-shaped. Do not attempt to use any of them until they are thoroughly dry, through and through.

These poles are too thick at their ends for the tepee framework, and smaller tubes, made of several thicknesses of newspaper, of single-sheet width, as shown in Figs. 671 and 672, should be stuck in the upper end of the long tubes. Figure 668 shows how the ends of the small tubes are crossed. Tie them together, and spread the lower end of the poles; then either pin or paste newspapers around the poles for a covering.

Make a doorway in one side, as shown in Fig. 668, and with paint and a brush ornament the covering Indian fashion.

A Kettle Tripod for your Indian encampment, like the one in Fig. 668, is formed by fastening together three paper poles in the same manner that the tepee framework is put together, and

The Kettle is made of paper as shown in Figs. 673 to 675. The sides of the kettle are made of two sheets of newspaper folded in half, as shown in the diagram (Fig. 673), with the lower edge slashed for a distance of 2 inches; and the bottom is made of two circular pieces of cardboard 10 inches in diameter (Fig. 673). Bend up the pieces between the slashes of the sides, to form flaps, then bend the sides around one of the bottom pieces, lap and paste them together, and paste

FIG. 674

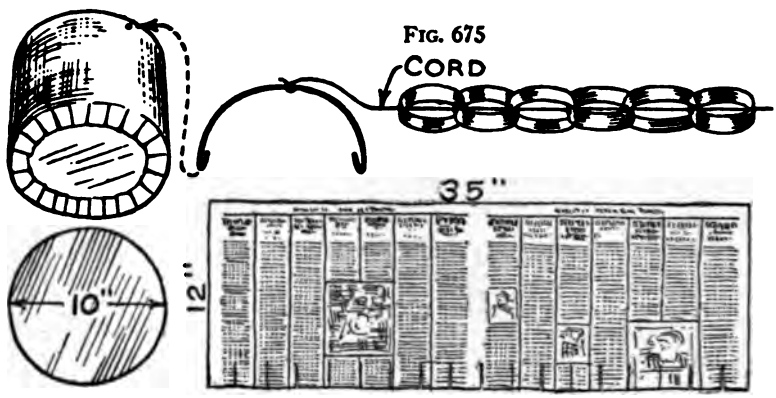


FIG. 673

FIG. 673. — Diagram of the Kettle Sides and Bottom Pieces
FIG. 674. — Paste the Side Flaps to the Bottom Like This
FIG. 675. — The Wire Handle and Paper-and-String Chain

the flaps to the cardboard (Fig. 674). Paste the second piece over the under side of the flaps, to conceal them.

Make the handle of a piece of wire, bending the ends as shown in Fig. 675, so that they will hook into holes punched in the sides of the kettle.

Suspend the kettle from its tripod by means of a paper chain (Fig. 668). Probably you have made similar paper chains, but this one must be reinforced by threading the paper links on to a piece of cord, as shown in Fig. 675, because the chain in itself would not be stiff enough to support the weight of the kettle. Tie one end of the cord to the kettle handle, and the other end to the top of the tripod.

The Make-believe Camp Fire is built of small paper tubes.

There are many

Other Things Which Can Be Built with Paper Tubes, including a log-cabin (described in "The Handy Boy"), forts, summer-houses, rail-fences, and doll swings; and the tubes may be set on end for telegraph-poles for a play telegraph system, or for trees for a play forest.

After the poles have been prepared, they will last indefinitely, because they are easily repaired if broken, by pasting bands of paper around the broken places.

The loosely constructed walls and roof of

The Brush Hut in Fig. 676 will permit breezes to pass through when any are astir, yet will keep out the sun's rays. A hut like this will be the coolest place you can have to play in on warm summer days. You will have no difficulty in putting up the pole framework; still, if brother wants to help, let him.

Figure 677 shows

The Framework. To make this strong it is best to support one side on a fence top. You will need poles for two corners, a couple of short pieces to nail to the fence to increase its height, if the fence is a low one, five or six poles for the roof, and sticks for the sides of the doorway and to place around the base of the framework. An old mop-handle, rake and hoe-handles, broom-handles, clothes-poles, a rug-pole, curtain-poles, worn-out shade-rollers, any of these will do for the framework. Broom-handles and other short pieces

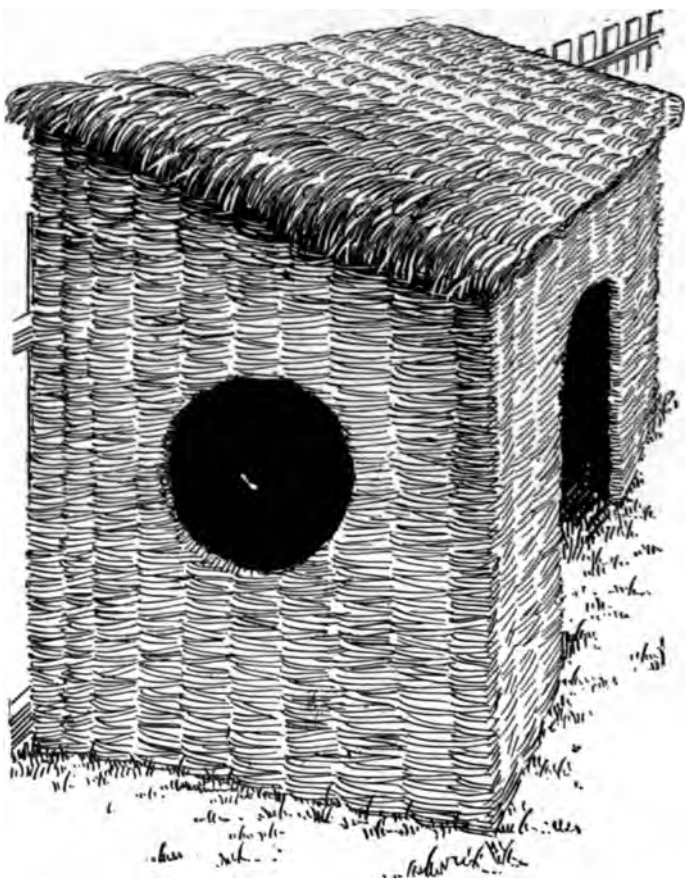


FIG. 676. — A Brush Hut

can be spliced end to end, by binding stick splints to opposite sides with string (Fig. 679).

In addition to the poles, you will need a barrel hoop for the framework of each window opening, and another for the arched top of the doorway. Your grocer will

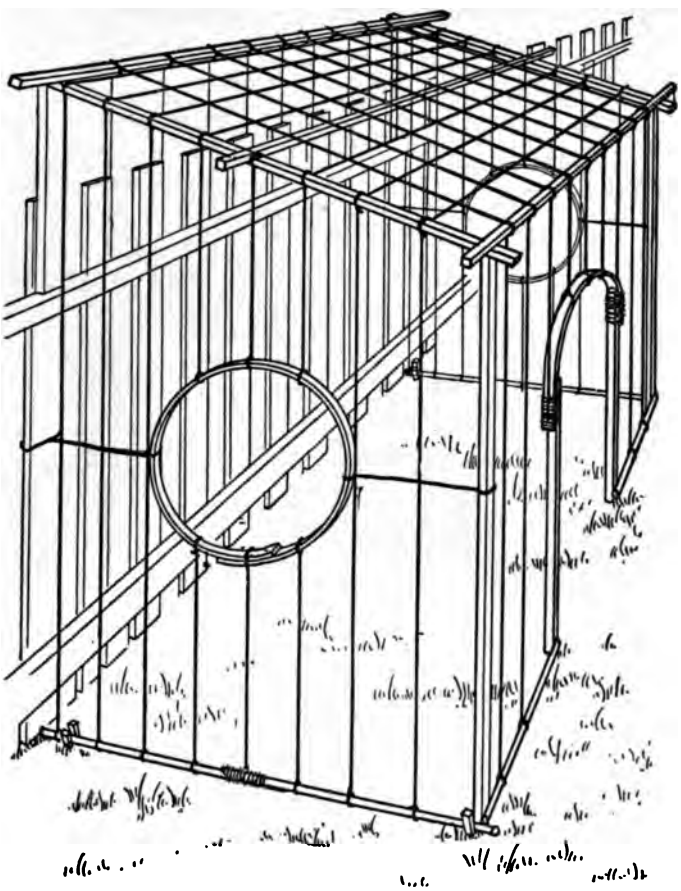


FIG. 677. — The Completed Framework of the Brush Hut

probably have a broken barrel from which he will gladly give you the hoops Then you will also need nails for fastening together the framework, and a ball of heavy wrapping-twine for the wall and roof strings.

Figure 678 shows how

To Begin the Framework, by nailing uprights *A* to the fence top, for two corners of the hut, and how the framework of each end is completed by erecting a corner pole *B* opposite upright *A*, and fastening a roof-pole *C* across *A* and *B* Make pole *B* enough lower than the top of upright *A* to provide for a sloping roof. When the end frames have been erected, connect the tops with three poles placed across roof-poles *C*, as shown in Fig. 677. These poles can be tied in place.

Figure 681 shows how to make

The Door-frame by driving sticks *D* into the ground each side of the opening, and binding the ends of an opened barrel-hoop to the tops with string.

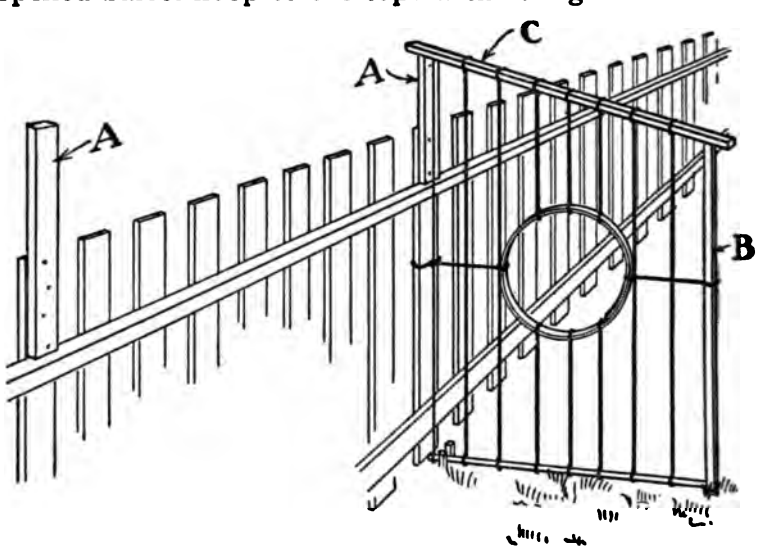


FIG. 678. — Detail of End Frame of Framework

FIG. 680

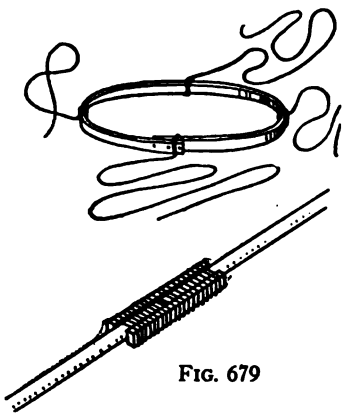


FIG. 679

FIG. 679. — Splice Together Short Sticks Like This to Make Long Sticks
FIG. 680. — The Hoop Window-Frame

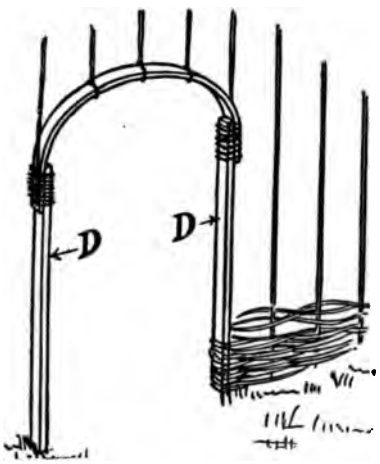


FIG. 681. — Detail of Door-Frame

The hoops for

The Window-frames are held in position by twine (Fig. 678). First tie four strings to each hoop, spacing these equidistant from one another (Fig. 680), then tie the string ends to the framework in the right places to bring the hoop in the center.

Figure 677 shows how

The Framework Strings are tied. The distance between the strings should not be greater than 9 inches. Tie the lower end of the strings to the sticks at the base of the framework. Run the roof strings both from end to end, and from side to side.

The Covering Material must be woven in and out

around the strings, as shown in Fig. 681. Underbrush from the woods, or weeds and long grasses from a vacant lot, or all three, may be used. You will need a large quantity of the material, but you need not gather it all at once. Get several armfuls, and weave it in place, then go after more. Start

The Weaving at the ground, and work up. When you come to corners, and to door and window openings, either loop the material around the poles, or tie the ends.

The Roof Covering. If the roof poles have been crossed and allowed to project, as shown in Fig. 677, strings may be tied to their ends and the roof covering brought out over the strings, to make a roof projection.

Stuff All Openings with grass and leaves, if you find any in the walls and roof after the covering has been put on. Then your brush hut will be complete, ready to play in.



CHAPTER XXXIX

BERRY-BOX AND BASKET TOYS

MORE toys than you would imagine can be made of the little berry-boxes and baskets in which fruit is packed for the market, and the thin wood is so easily cut and fastened that the work is not much different from that connected with making things of cardboard. A sharp knife and a pair of scissors are needed for cutting, and a needle and thread, or glue, for fastening together the parts.

The Cradle shown in Fig. 682, and in detail in Fig. 687 is made of a berry-box with a basket hood. Open the side of the box that has the lapped ends, and fold down and out the doubled pieces (Fig. 688). Then set the box inside of the basket, with the opened side pieces against the basket sides, and sew securely to the basket.

Figure 689 shows the rockers (*A*) and the upright supports for attaching them (*B*). Make the rockers 2 inches longer than the width of the cradle, and cut a slot in the lower end of uprights *B* just wide enough to receive their ends. Figure 687 shows how the uprights should be stitched to the sides of the cradle, and how the rockers should be held in the slots by

loops of thread fastened to the upright ends and passed around the rocker ends.

The Table shown in Fig. 683 has a top made of a square piece of cigar-box wood, and its base is made of

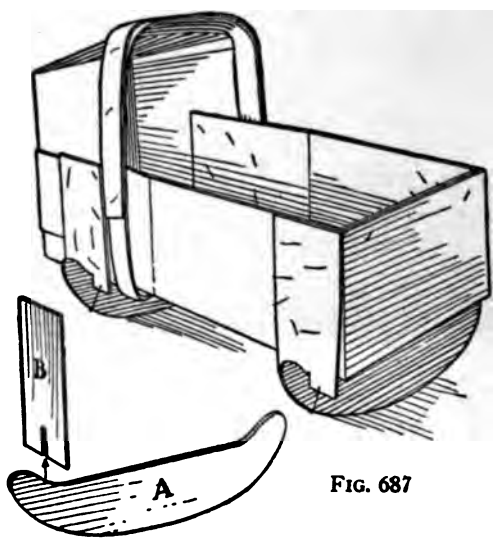


FIG. 687

FIG. 689

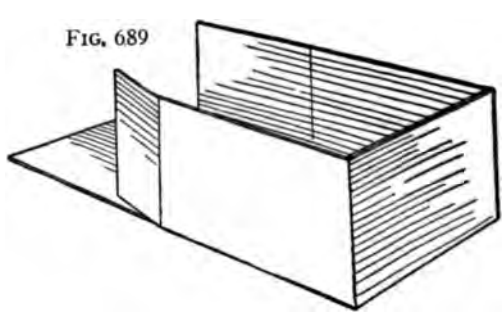


FIG. 688

FIGS. 687 to 689. — Details of Cradle Shown in Fig. 682



FIG. 683.—A TABLE



FIG. 686.—A SWINGING SEAT



FIG. 685.—A DRESSER



FIG. 684.—A CHAIR



FIG. 682.—A CRADLE



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two pieces, each slotted along the center, one-half of its length, so that the two will fit together, with their slots slipped over the portions not slotted. Glue the top to the top edges of the base.

The Chair in Fig. 684 is made from a square berry-box. The seat is one side of the box, the legs are the adjoining sides, and the back is the box bottom, bent out and up. As the seat would be too deep, and the legs too long, if the box sides were left their natural size, these must be cut down to the proportions shown in the photograph.

The Dresser shown in Fig. 685 is made exactly as the chair in Fig. 684 is made. Then a strip with ends bent down is fitted between the side pieces, for a shelf, and a strip is fastened around the top and sides of the back piece, for a mirror-frame. The mirror is made of a piece of tin-foil cut to fit the frame. Cover the dresser top with a piece of lace, for a scarf, and make a pin-cushion to stand upon it.

The Swinging Seat illustrated in Fig. 686 is made from the bottom and two ends of a square pint berry-box, with the ends tapered off with a knife, and a strong linen thread knotted on the end and run through holes pierced in four places, for hanging up the seat.

Figure 690 shows

A Sofa made of a long-shaped quart-size berry-box. All that you have to do to this box is remove one side down to the bottom, then carefully cut away the end as shown, to form arms.

Another Style of Chair is shown in Fig. 691. This is made of two adjoining sides of a pint-size box, one of which forms the back, and the other, scored and folded,

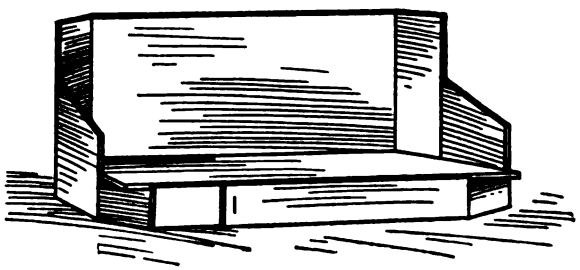


FIG. 690. — A Sofa

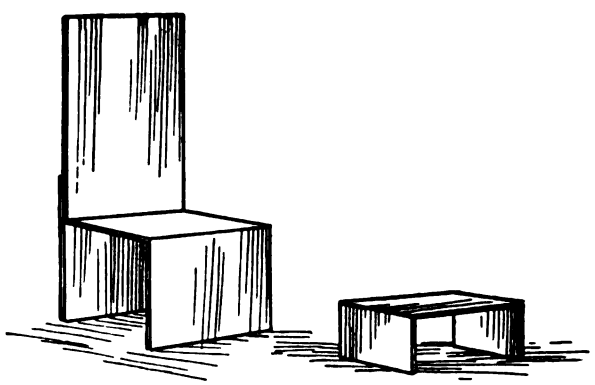


FIG. 691. — A Chair FIG. 692. — A Footstool

forms the seat and front legs; the back legs are made of a piece of wood glued or sewed to the chair back.

The Footstool shown in Fig. 692 is made of one side of a pint berry-box. It is only necessary to score the

piece ½ inch from each end, and bend down the ends for legs.

The Rocker in Fig. 693 makes a chair of pleasing design. Remove one side of a box, and about one-third of each of the adjoining sides and the bottom, and use the remainder of the box for the seat, back, and arms of the chair. By selecting the doubled sides of the box for cutting, the upper parts of the rockers (Fig. 694) can be slipped up and fastened between the doubled pieces (Fig. 693). Cut the rockers by the pattern of Fig. 694, making them long enough to project about 1 inch both in front and back of the seat.

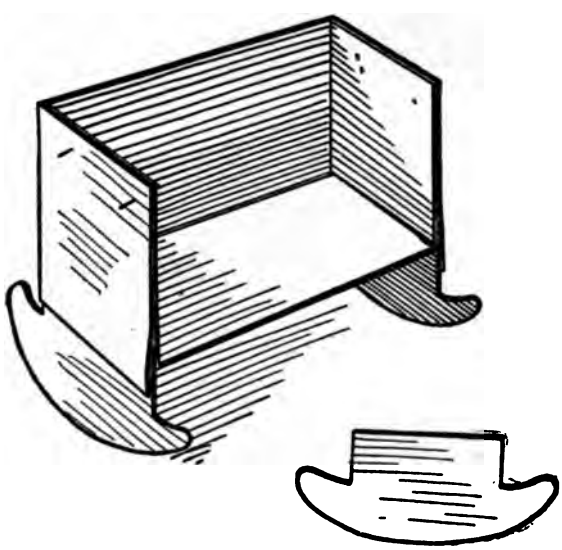


FIG. 693. — A Rocker FIG. 694. — Detail of Rocker

Another Style of Table is shown in Fig. 695. This is made of a quart-size berry-box, with one-half of the height of its sides removed all around, in one piece, and the piece thus removed fastened edgewise inside of the box for a base.

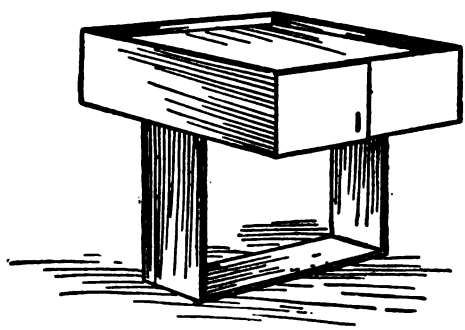


FIG. 695. — Another Table

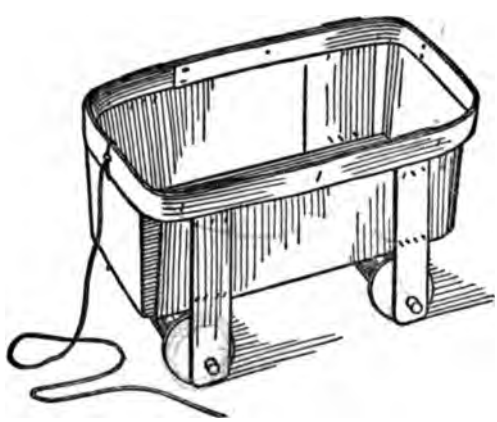


FIG. 696. — A Wagon

Figure 696 shows

A Wagon made of a berry-basket. Get a pair of large ribbon spools for wheels (Fig. 697), and cut two sticks to the diameter of a pencil for axles, and a pair of uprights (*A*, Fig. 697) for connecting the axles to the basket. Make holes near the ends of the uprights just large enough for the axles to fit in, cutting very carefully in order not to split the wood. Stitch the uprights to the basket sides.

The wagon can be converted into

A Doll Carriage by fastening a second basket over one end of the wagon basket, for a hood, as the hood of the cradle in Fig. 687 was put on. Add a handle to the back to complete the carriage.

A Swing for your jointed doll is easily made. For the swing shown in Fig. 698 you will need four sticks about 24 inches long for the supports, a piece 10 inches long for the top crosspiece, a pint-size fruit-box — the kind cherries are packed in — for the seat, and some string for suspending the seat.

If you can get four straight pieces of tree branches, they will do nicely for the supports. Drive the lower ends of each pair into the ground, 8 inches apart, bend the tops over to lap as shown, and bind

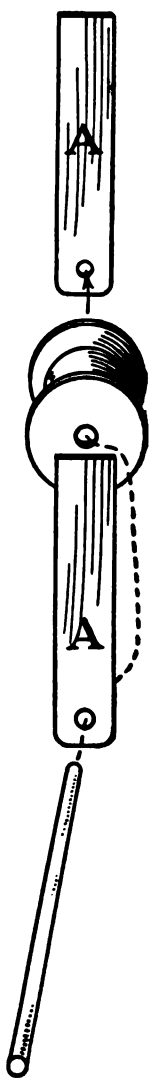


FIG. 697.—Wheels

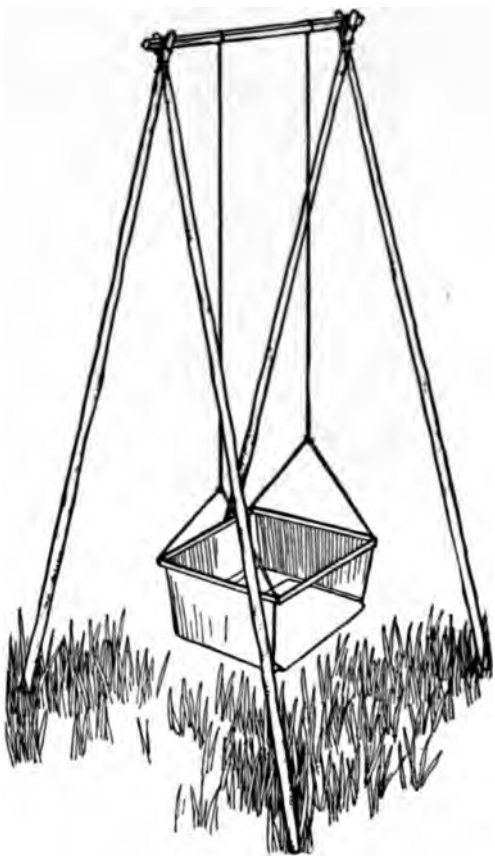


FIG. 698. — A Swing

together with string. Place the supports 9 inches apart, directly opposite one another. Set the top crosspiece in the crotches formed by the crossed ends and bind in place with string.

Figures 699 and 700 show how the cherry-box is converted into

The Swing Seat. Slip the top edge of one side of the box from the tin binding by which the box is held together (Fig. 699), fold the side over on to the inside of the box-bottom, and glue or sew it to the bottom

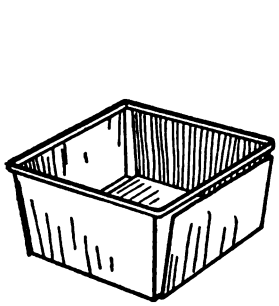


FIG. 699



FIG. 700

FIGS. 699 and 700. — Details of the Swing Seat

(Fig. 700). Tie suspension threads to the corners of the box, as shown in Fig. 700, bring these together and tie them 2 inches above the top of the box; then run the single thread from the point of intersection up to the top crosspiece on the supports.



CHAPTER XL

A FLY-TRAP

FLIES breed only in filth, stable refuse, and decayed vegetable and animal matter; therefore a general clean-up of the neighborhood, the removal of all breeding material, and the covering of garbage-cans is the first important thing to urge, in a fly-exterminating campaign. You girls can be of great help. With this work well in hand, a systematic swatting and trapping warfare must be waged, and here again you can be of great assistance. You can make fly-traps and set them in and around your home.

Figure 701 shows

An Excellent Trap that is easily built. The completed framework of

The Outer Cage is shown in Fig. 702, and patterns for its parts are shown in Figs. 703 to 706. First prepare the bottom frame (Fig. 703). Cut sticks *A* and *B* to the dimensions shown in Fig. 704, and lap the ends of *B* so there will be a notch 1 inch square at each corner to receive uprights *D*. Place the frame upon a board, and mark out around it for the outline of top piece *C* (Fig. 706); then cut out this piece, and trim it up to the exact shape of the bottom frame.

Uprights *D* must be of the right width and thickness to fit in the notches in the top board and bottom frame. Nail them in place so their ends will project ½ inch.

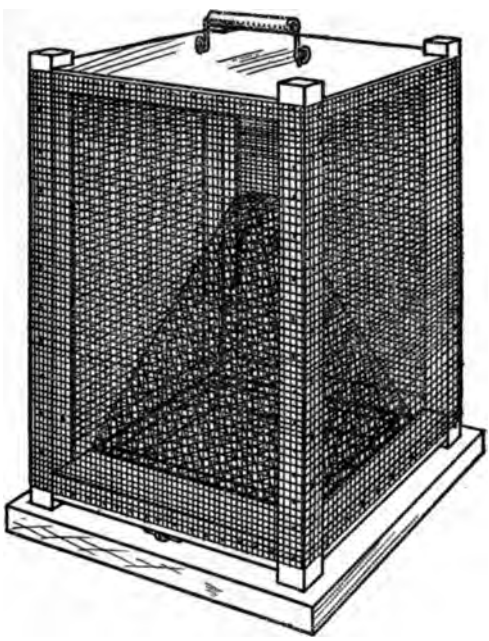


FIG. 701. — A Practical Fly-Trap That Is Easily Built

With the framework completed, enclose the sides with screen wire cut to the right width to extend from top to bottom. Tack this on with small flat-head tacks.

The Inner Conical Cage, shown in Fig. 707, is built upon a base framework made of two pairs of sticks (*E* and *F*, Fig. 708). The frame must be built to fit

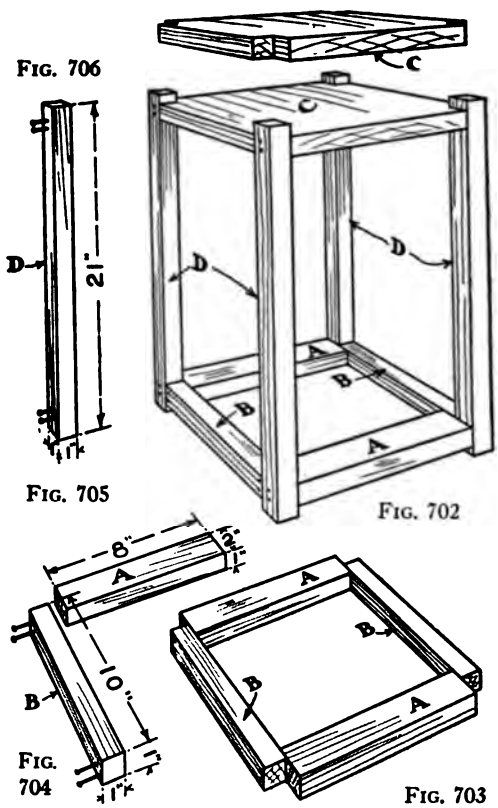


FIG. 706

FIG. 705

FIG. 702

FIG. 704

FIG. 703

FIG. 702. — The Completed Framework of the Fly-Trap
FIGS. 703 to 706. — Details of Framework

inside of the bottom frame of the outer cage. The sticks may be ½ inch thick and 1 inch wide.

Figure 709 shows the pattern for cutting the screen-wire covering. Draw out this pattern full-size upon

heavy paper, then cut it out, lay it upon a piece of screen-wire, and cut the wire of the exact shape and size. Fold the wire where indicated on the pattern by white lines, then tack the lower edge to the frame

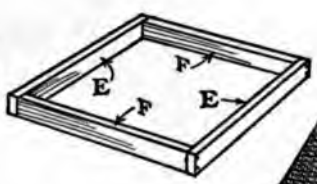


FIG. 708. — Base Framework for Inner Cage

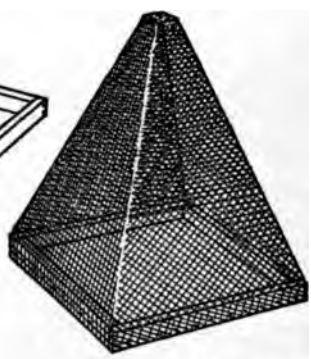


FIG. 707. — The Inner Cage

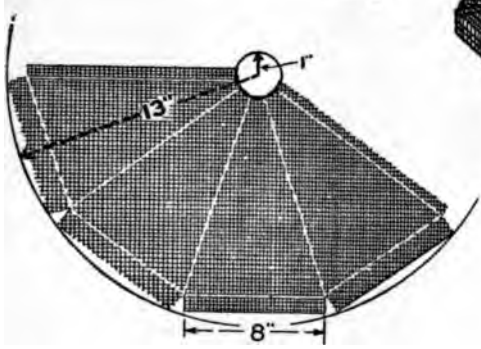


FIG. 709. — Pattern for Cutting Screen Wire for the Inner Cage

strips *E* and *F*, and wire together the overlapping side edges by weaving a strand of wire in and out through the meshes.

Figure 710 shows how to

Fit the Inner Cage Inside the Outer Cage. With it in place, cut four tin or wooden buttons (*G*, Fig. 712),

and tack these to the pieces *A* and *B*, so that when turned in the position shown in Fig. 710 they will lock in the inner cage, and when given a one-half turn they will release it.

The base board *H* (Fig. 710) is provided for

A Bait Tray. Cut it 1 inch longer and 1 inch wider

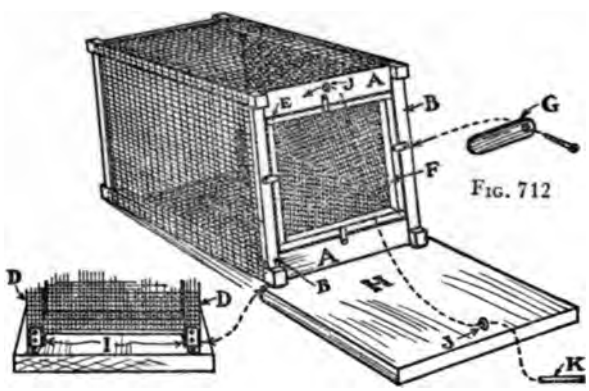


FIG. 712

FIG. 711 FIG. 710

FIG. 710. — How the Inner Cage Fits into the Outer Cage
FIG. 711. — How the Outer Cage is Hinged to a Base
FIG. 712. — Lock the Inner Cage with Four Tin Buttons Like This

than the base of the outer cage, and hinge it to the ends of two of the uprights *D* with pieces of leather (*I*, Fig. 711). Figure 710 shows how to provide for fastening the base to the cage by screwing a screw-eye into the bottom frame and another into the base (*J*), in the right positions so a peg (*K*) can be pushed through them. A parcel-handle makes a good trap-handle.

Bait the Trap with meat, sweets, or pieces of banana, then watch for results. After feeding, the flies will rise in the conical cage, seeking the light, and will pass through the small top opening into the outer cage, where they will be trapped. And once in, there is little chance of their escaping. Immerse the trap in hot water to kill the trapped flies.

THE END.



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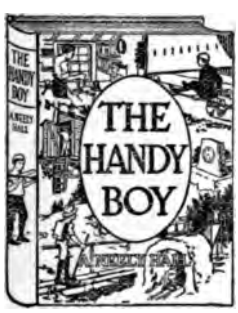
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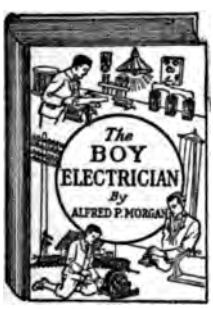
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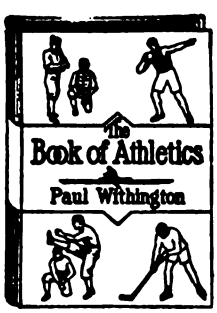
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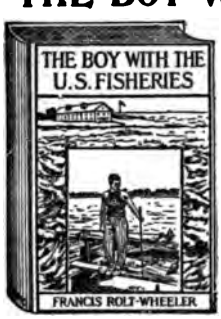
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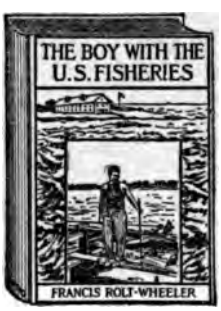
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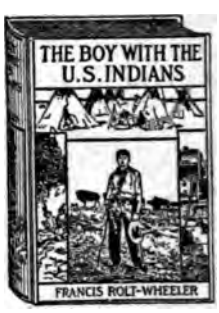
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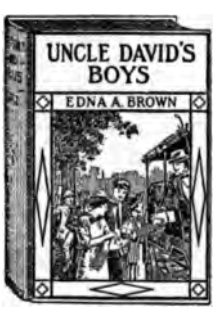
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